

SAMSUNG

# GSM TELEPHONE

## SGH-E890

# SERVICE *Manual*

GSM TELEPHONE

CONTENTS



1. Safety Precautions
2. Specification
3. Product Function
4. Array course control
5. Exploded View/Disassembly and Assembly Instructions
6. MAIN Electrical Parts List
7. Block Diagrams
8. PCB Diagrams
9. Flow Chart of Troubleshooting
10. Reference data

**SAMSUNG  
ELECTRONICS**



# CONTENTS

|   |     |
|---|-----|
| <b>1. Safety Precautions</b>                                    |     |
| 1-1. Repair Precaution.....                                     | 1-1 |
| 1-2. ESD(Electrostatically Sensitive Devices) Precaution.....   | 1-2 |
| <b>2. Specification</b>   |     |
| 2-1. GSM General Specification.....                             | 2-1 |
| 2-2. GSM Tx Power Class.....                                    | 2-2 |
| <b>3. Product Function</b>                                      |     |
| <b>4. Array course control</b>                                  |     |
| 4-1. Software Adjustments.....                                  | 4-1 |
| 4-2. Software Downloading.....                                  | 4-2 |
| <b>5. Exploded View/Disassembly &amp; Assembly Instructions</b> |     |
| 5-1. Cellular phone Exploded View.....                          | 5-1 |
| 5-2. Cellular phone Part list.....                              | 5-2 |
| 5-3. Disassembly & Assembly Instructions.....                   | 5-4 |
| <b>6. MAIN Electrical Parts List</b>                            |     |
| <b>7. Block Diagrams</b>  |     |
| 7-1. RF Solution Block Diagrams.....                            | 7-1 |
| 7-2. Base Band Block Diagrams.....                              | 7-3 |
| <b>8. PCB Diagrams</b>  |     |

## CONTENTS

### 9. Flow Chart of Troubleshooting

|                                  |      |
|----------------------------------|------|
| 9-1. Power On.....               | 9-1  |
| 9-2. Initial .....               | 9-4  |
| 9-3. Charging Part.....          | 9-7  |
| 9-4. Sim Part.....               | 9-8  |
| 9-5. Microphone Part .....       | 9-10 |
| 9-6. Speaker Part(MP3/Spk).....  | 9-12 |
| 9-7. Key Data Input.....         | 9-14 |
| 9-8. Receiver Part.....          | 9-15 |
| 9-9. LCD Part.....               | 9-16 |
| 9-10. Camera Part.....           | 9-18 |
| 9-11. Trans Flash Card Part..... | 9-20 |
| 9-12. TV OUT.....                | 9-22 |
| 9-13. Bluetooth Part.....        | 9-23 |
| 9-14. Main Key LED Part.....     | 9-25 |
| 9-15. GSM900 Receiver.....       | 9-26 |
| 9-16. GSM900 Transmitter.....    | 9-27 |
| 9-17. DCS Receiver.....          | 9-28 |
| 9-18. DCS/PCS Transmitter.....   | 9-29 |
| 9-19. PCS Receiver.....          | 9-30 |

### 10. Reference data

---

## 1. Safety Precautions

---

### 1-1. Repair Precaution

- Repair in Shield Box, during detailed tuning.  
Take specially care of tuning or test,  
because specificity of cellular phone is sensitive for surrounding interference(RF noise).
  
- Be careful to use a kind of magnetic object or tool,  
because performance of parts is damaged by the influence of magnetic force.
  
- Surely use a standard screwdriver when you disassemble this product,  
otherwise screw will be worn away.
  
- Use a thickened twisted wire when you measure level.  
A thickened twisted wire has low resistance, therefore error of measurement is few.
  
- Repair after separate Test Pack and Set because for short danger (for example an overcurrent and furious flames of parts etc) when you repair board in condition of connecting Test Pack and tuning on.
  
- Take specially care of soldering, because Land of PCB is small and weak in heat.
  
- Surely tune on/off while using AC power plug, because a repair of battery charger is dangerous when tuning ON/OFF PBA and Connector after disassembling charger.
  
- Don't use as you please after change other material than replacement registered on SEC System.  
Otherwise engineer in charge isn't charged with problem that you don't keep this rules.

## 1-2. ESD(Electrostatically Sensitive Devices) Precaution

Several semiconductor may be damaged easily by static electricity. Such parts are called by ESD (Electrostatically Sensitive Devices), for example IC,BGA chip etc. Read Precaution below. You can prevent from ESD damage by static electricity.

- Remove static electricity remained your body before you touch semiconductor or parts with semiconductor. There are ways that you touch an earthed place or wear static electricity prevention string on wrist.
- Use earthed soldering steel when you connect or disconnect ESD.
- Use soldering removing tool to break static electricity. , otherwise ESD will be damaged by static electricity.
- Don't unpack until you set up ESD on product. Because most of ESD are packed by box and aluminum plate to have conductive power ,they are prevented from static electricity.
- You must maintain electric contact between ESD and place due to be set up until ESD is connected completely to the proper place or a circuit board.

## 2. Specification

### 2-1. GSM General Specification

|                                    | <b>GSM900<br/>Phase 1</b> | <b>EGSM 900<br/>Phase 2</b> | <b>DCS1800<br/>Phase 1</b> | <b>PCS1900</b>         |
|------------------------------------|---------------------------|-----------------------------|----------------------------|------------------------|
| Freq. Band[MHz]<br>Uplink/Downlink | 890~915<br>935~960        | 880~915<br>925~960          | 1710~1785<br>1805~1880     | 1850~1910<br>1930~1990 |
| ARFCN range                        | 1~124                     | 0~124 &<br>975~1023         | 512~885                    | 512~810                |
| Tx/Rx spacing                      | 45MHz                     | 45MHz                       | 95MHz                      | 80MHz                  |
| Mod. Bit rate<br>/ Bit Period      | 270.833kbps<br>3.692us    | 270.833kbps<br>3.692us      | 270.833kbps<br>3.692us     | 270.833kbps<br>3.692us |
| Time Slot Period<br>/ Frame Period | 576.9us<br>4.615ms        | 576.9us<br>4.615ms          | 576.9us<br>4.615ms         | 576.9us<br>4.615ms     |
| Modulation                         | 0.3GMSK                   | 0.3GMSK                     | 0.3GMSK                    | 0.3GMSK                |
| MS Power                           | 33dBm~5dBm                | 33dBm~5dBm                  | 30dBm~0dBm                 | 30dBm~0dBm             |
| Power Class                        | 5pcl ~ 19pcl              | 5pcl ~ 19pcl                | 0pcl ~ 15pcl               | 0pcl ~ 15pcl           |
| Sensitivity                        | -102dBm                   | -102dBm                     | -100dBm                    | -100dBm                |
| TDMA Mux                           | 8                         | 8                           | 8                          | 8                      |
| Cell Radius                        | 35Km                      | 35Km                        | 2Km                        | -                      |

## 2-2. GSM TX power class

| <b>TX Power control level</b> | <b>GSM900</b> |
|-------------------------------|---------------|
| 5                             | 33±3 dBm      |
| 6                             | 31±3 dBm      |
| 7                             | 29±3 dBm      |
| 8                             | 27±3 dBm      |
| 9                             | 25±3 dBm      |
| 10                            | 23±3 dBm      |
| 11                            | 21±3 dBm      |
| 12                            | 19±3 dBm      |
| 13                            | 17±3 dBm      |
| 14                            | 15±3 dBm      |
| 15                            | 13±3 dBm      |
| 16                            | 11±5 dBm      |
| 17                            | 9±5 dBm       |
| 18                            | 7±5 dBm       |
| 19                            | 5±5 dBm       |

| <b>TX Power control level</b> | <b>DCS1800</b> |
|-------------------------------|----------------|
| 0                             | 30±3 dBm       |
| 1                             | 28±3 dBm       |
| 2                             | 26±3 dBm       |
| 3                             | 24±3 dBm       |
| 4                             | 22±3 dBm       |
| 5                             | 20±3 dBm       |
| 6                             | 18±3 dBm       |
| 7                             | 16±3 dBm       |
| 8                             | 14±3 dBm       |
| 9                             | 12±4 dBm       |
| 10                            | 10±4 dBm       |
| 11                            | 8±4dBm         |
| 12                            | 6±4 dBm        |
| 13                            | 4±4 dBm        |
| 14                            | 2±5 dBm        |
| 15                            | 0±5 dBm        |

| <b>TX Power control level</b> | <b>PCS1900</b> |
|-------------------------------|----------------|
| 0                             | 30±3 dBm       |
| 1                             | 28±3 dBm       |
| 2                             | 26±3 dBm       |
| 3                             | 24±3 dBm       |
| 4                             | 22±3 dBm       |
| 5                             | 20±3 dBm       |
| 6                             | 18±3 dBm       |
| 7                             | 16±3 dBm       |
| 8                             | 14±3 dBm       |
| 9                             | 12±4 dBm       |
| 10                            | 10±4 dBm       |
| 11                            | 8±4dBm         |
| 12                            | 6±4 dBm        |
| 13                            | 4±4 dBm        |
| 14                            | 2±5 dBm        |
| 15                            | 0±5 dBm        |

---

### 3. Product Function

---

#### Main Function

- 1.3 Megapixel Camera
- 262K Color TFT Screen (240×320)
- Video Recording & Messaging
- Music Player (MP3/AAC/AAC+)
- Bluetooth Wireless Technology
- Multimedia Message Service (MMS)
- E-mail
- Voice recorder
- Java / WAP2.0
- Tri-band(900/1800/1900MHz)



## 4. Array course control

### 4-1. Software Adjustments

Test Jig (GH80-03306A)



RF Test Cable  
(GH39-00283A)



Test Cable  
(GH39-00499B)



Serial Cable



Power Supply Cable



DATA CABLE  
(GH39-00482B)



TA  
(GH44-01116B)



TV-OUT Cable  
(GH39-00410A)



## 4-2. Software Downloading

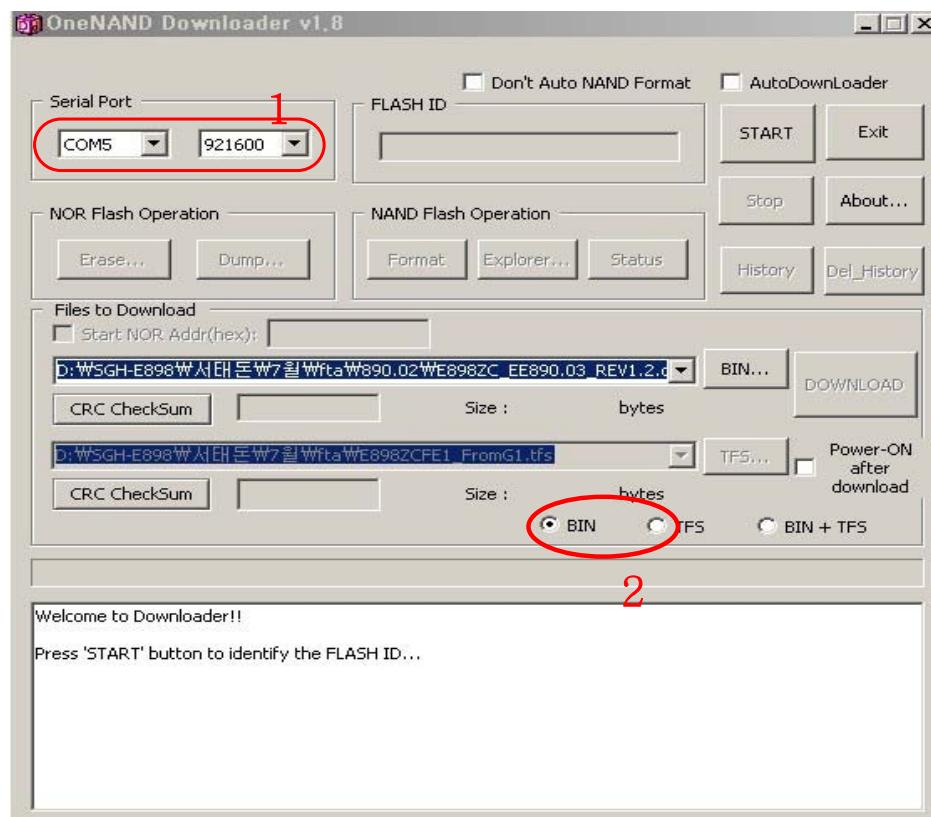
### 4-2-1. Pre-requisite for Downloading

- Downloader Program([OneNAND\\_Downloader\\_1.8.exe](#))
- E890 Mobile Phone
- Data Cable
- Binary file, TFS file

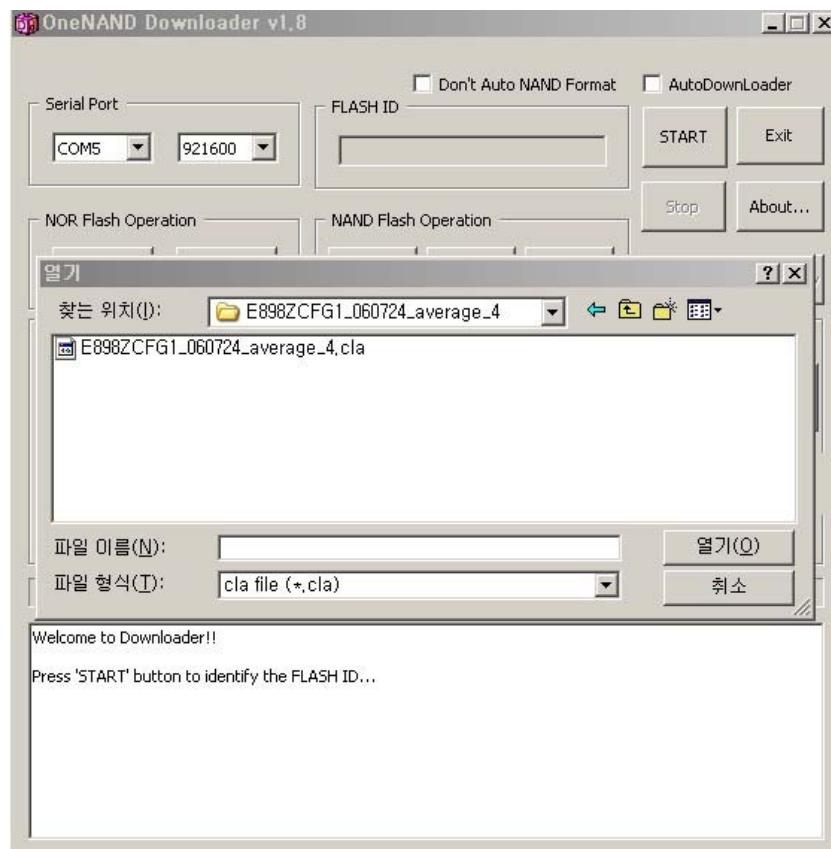
### 4-2-2. S/W Downloader Program

■ Load the binary download program by executing the  
[“OneNAND\\_Downloader\\_1.8.exe”](#)

1. Select the connected serial port and the rate of speed
2. Select the check box, the mode you want to download.
  - if the binary file wanted, check only 'BIN'
  - if the tfs file wanted, check only 'TFS'
  - if all the files wanted, check 'BIN+TFS'



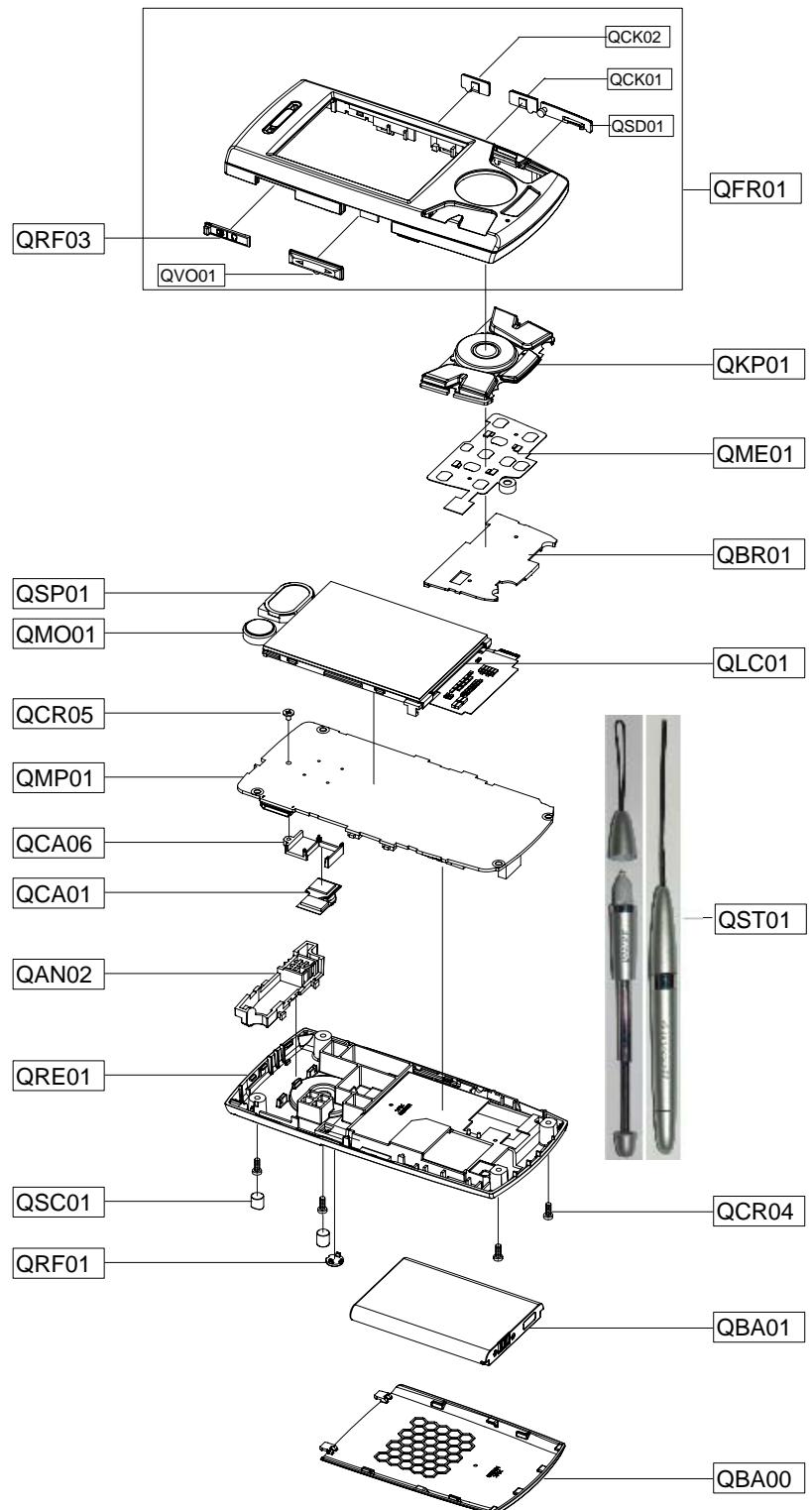
3. Select the file(s) what you want to download





## 5. Exploded View/Disassembly&Assembly Instructions

### 5-1. Cellular phone Exploded View



## 5-2. Cellular phone Parts list

| Design LOC |       | Description                    | Sec Code    |
|------------|-------|--------------------------------|-------------|
| QAN02      |       | INTENNA-SGHE898                | GH42-00955A |
| QBA00      |       | PMO-COVER BATT                 | GH72-33166A |
| QBA01      |       | INNER BATTERY PACK-880MAH,BLK, | GH43-02323A |
| QBR01      |       | NDC-BRAKET DOMESHEET           | GH71-06759A |
| QCA01      |       | UNIT-CAMERA                    | GH59-03358A |
| QCA06      |       | NDC-BRAKET CAMERA              | GH71-06760A |
| QCR04      |       | SCREW-MACHINE                  | 6001-001479 |
| QCR05      |       | SCREW-MACHINE                  | 6001-001478 |
| QKP01      |       | ASSY KEYPAD-(TIY/SIL)          | GH98-01807A |
| QLC01      |       | LCD-SGH-E898                   | GH07-00969A |
| QME01      |       | UNIT-MAIN KEY FPCB             | GH59-03373A |
| QMO01      |       | MOTOR DC-SGHE898               | GH31-00273A |
| QMP01      |       | PBA MAIN-SGHE890S              | GH92-03152A |
| QRE01      |       | ASSY CASE-REAR                 | GH98-01806A |
| QRF01      |       | PMO-COVER RF                   | GH72-32726A |
| QRF03      |       | PMO-COVER EAR JACK             | GH72-32714A |
| QSC01      |       | RMO-COVER SCREW                | GH73-07720A |
| QSP01      |       | SPEAKER                        | 3001-002028 |
| QST01      |       | ASSY ACCE-STYLUS PEN(SIL_SAM)  | GH98-02835F |
| QFR01      |       | ASSY CASE-FRONT                | GH98-02838A |
|            | QCK01 | PMO-CAMERA KEY                 | GH72-33664A |
|            | QCK02 | PMO-HOLD KEY                   | GH72-33666A |
|            | QSD01 | PMO-COVER SD                   | GH72-32715A |
|            | QVO01 | PMO-VOLUME KEY                 | GH72-33665A |

| Description                   | Sec Code    |
|-------------------------------|-------------|
| BAG PE                        | 6902-000634 |
| ADAPTOR-SGHE690,SIL,EU,A_TYPE | GH44-01361B |
| UNIT-EARPHONE                 | GH59-02499B |
| LABEL(P)-IMEI                 | GH68-01335D |
| LABEL(P)-WATER SOAK           | GH68-02026A |
| LABEL(P)-WATER SOAK           | GH68-02026A |
| MANUAL USERS-SEA ENGLISH      | GH68-12558A |
| LABEL(R)-MAIN(EU)             | GH68-12864A |
| CUSHION-CASE(EU)              | GH69-04624A |
| BOX-UNIT(SEA)                 | GH69-04625A |
| RMO-CUSHION ANTENNA PIN       | GH73-07718A |
| MPR-CUSHION PBA FRONT         | GH74-25664A |
| MPR-TAPE DOME SHEET ESD       | GH74-25682A |
| MPR-TAPE PBA FRONT            | GH74-25684A |
| MPR-TAPE PBA BACK             | GH74-25685A |
| MPR-TAPE PBA SIM              | GH74-26193A |
| MPR-TAPE PBA LCD              | GH74-26194A |
| MPR-VINYL BOHO FRONT          | GH74-27684A |
| MPR-VINYL BOHO FRONT          | GH74-27684A |
| MPR-TAPE                      | GH74-27758A |
| MPR-TAPE                      | GH74-27758A |
| MPR-VINYL BOHO LCD            | GH74-28057A |
| MPR-TAPE                      | GH74-28229A |

## 5-3. Disassembly and Assembly Instructions

### — Disassembly

1

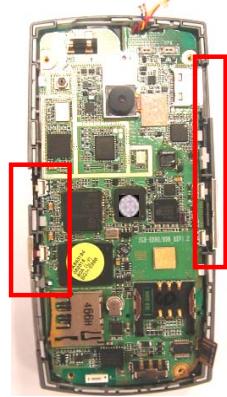
The location of the hook



- 1) Unscrew, and remove the REAR from the FRONT
- 2) Confirm the location of the hook, and remove the rear without damage.

1) When you dismantle a mobile phone, be careful about the warp of the framework or damage of the hook.

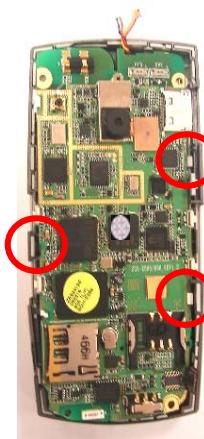
2



- 1) Remove the side keys and the ear cover from the PBA.
- 2) Detach the key connector from the PBA.

1) Be careful about the damage of the hook and connector.

3



- 1) Remove the PBA from the FRONT.
- 2) Widen the part of hook to the outside, and push up PBA at the backside(LCD).

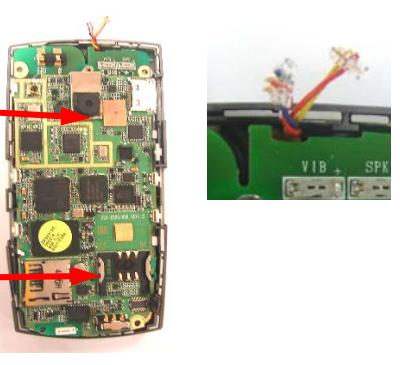
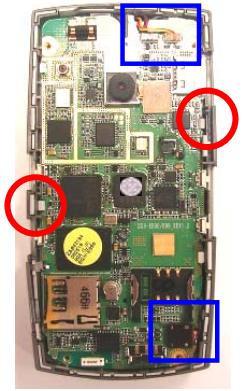
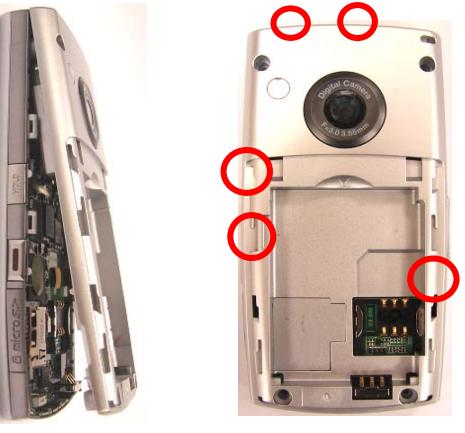
- 1) Be careful about the damage of the hook.
- 2) Be careful about the warp of the PBA or damage of the components

4



- 1) The figure of the disjoined FRONT and PBA.

## — Assembly

|  |  |
|--|--|
|   |   |
| <p>1) The wire of motor and speaker have to maintain the twisted state.<br/>       2) If the wire is dispersed, twist the wires to the right side. At this time, put the motor wire upside the speaker wire.<br/>       1) Be careful about the damage of wire</p> | <p>1) Assemble the PBA from right side( arrow mark ) to the front.<br/>       2) Put the Wire like figure.<br/>       1) Be careful that the key connector is placed down the pba.<br/>       2) WIRE must be at the fixed location.</p> |
|    |    |
| <p>1) when assemble PBA, push the hook and four screw boss holes and recheck PBA assembling with accuracy.<br/>       2) Attach the motor, speaker, key connector.</p>   | <p>1) Arrange the WIRE like the figure.</p>  |
| <p>1) The connector with blue wire connect to VIB position.<br/>       2) The connector with yellow wire connect to SPK position.</p>  | <p>1) Recheck connection part not to get loose.</p>  |
|   |    |
| <p>1) Adhere the side keys like figure.<br/>       1) Then, put the projection of key upside side switch</p>   | <p>1) Assemble the REAR with the marked hook.<br/>       2) Assemble with accuracy, and screw.</p>   |

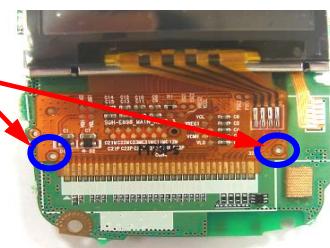
## — LCD F-PCB KIT Assembly

1



- 1) At LCD backside, detach the release paper of the both-sided tape
- 2) Like figure, attach the insulation tape at FPCB backside. - Using cotton stick, rub down the insulation tape to be tight.

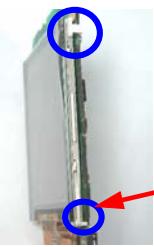
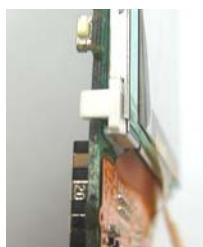
2



- 1) At attaching, align two FPCB HOLEs and two silk points.
- 2) Attach and start the soldering.

※ Caution : At soldering, be careful about getting loose and recheck alignment of silk points and pads.

3



- 1) Assemble the LCD hook.

※ Caution

First, assemble the left downside and then assemble the right upside.

4



- 1) Align the right side EL FPCB and PBA Land and start the soldering..

※ Caution Then, be careful about "short" of the soldering part.

5



6



- 1) After soldering, attach the insulation tape along the silk line.

- Using cotton stick, rub down the folded part not to get loose.

※ caution : Be careful about "short" of soldering part.  
Recheck attaching part not to get loose.

- 1) Wrap up and attach the left side insulation tape to the PBA backside.(like figure)

※ caution : Recheck attaching part not to get loose.

## 6. MAIN Electrical Parts List

| Design LOC | Description         | SEC Code    | STATUS |
|------------|---------------------|-------------|--------|
| ANT101     | NPR-ANTENNA CONTACT | GH71-04302A | SA     |
| ANT102     | NPR-ANTENNA CONTACT | GH71-04302A | SA     |
| ANT103     | ANTENNA-CHIP        | 4202-001224 | SA     |
| BAT100     | BATTERY-LI(2ND)     | 4302-001181 | SA     |
| BTC600     | HEADER-BATTERY      | 3711-006250 | SA     |
| C102       | R-CHIP              | 2007-000171 | SA     |
| C105       | C-CER,CHIP          | 2203-000278 | SA     |
| C106       | C-CER,CHIP          | 2203-000278 | SA     |
| C108       | INDUCTOR-SMD        | 2703-002544 | SA     |
| C111       | C-CER,CHIP          | 2203-001432 | SA     |
| C112       | C-CER,CHIP          | 2203-005482 | SA     |
| C113       | INDUCTOR-SMD        | 2703-002369 | SA     |
| C114       | C-CER,CHIP          | 2203-005482 | SA     |
| C115       | C-CER,CHIP          | 2203-001432 | SA     |
| C116       | INDUCTOR-SMD        | 2703-002368 | SA     |
| C117       | C-CER,CHIP          | 2203-000812 | SA     |
| C118       | C-CER,CHIP          | 2203-006399 | SA     |
| C119       | C-CER,CHIP          | 2203-006399 | SA     |
| C120       | C-CER,CHIP          | 2203-005061 | SA     |
| C121       | C-CER,CHIP          | 2203-001432 | SA     |
| C122       | C-CER,CHIP          | 2203-005482 | SA     |
| C123       | C-CER,CHIP          | 2203-005482 | SA     |
| C124       | C-CER,CHIP          | 2203-005482 | SA     |
| C125       | C-CER,CHIP          | 2203-005482 | SA     |
| C126       | C-CER,CHIP          | 2203-005968 | SA     |
| C127       | C-CER,CHIP          | 2203-000812 | SA     |
| C128       | C-CER,CHIP          | 2203-006201 | SA     |
| C129       | C-CER,CHIP          | 2203-006201 | SA     |
| C130       | C-TA,CHIP           | 2404-001240 | SA     |
| C133       | INDUCTOR-SMD        | 2703-002207 | SA     |
| C134       | C-CER,CHIP          | 2203-000530 | SNA    |
| C135       | C-CER,CHIP          | 2203-000696 | SA     |
| C136       | C-CER,CHIP          | 2203-005288 | SA     |
| C138       | C-CER,CHIP          | 2203-000278 | SA     |
| C139       | C-CER,CHIP          | 2203-000233 | SA     |
| C141       | C-TA,CHIP           | 2404-001474 | SA     |
| C142       | C-CER,CHIP          | 2203-000254 | SA     |
| C143       | C-CER,CHIP          | 2203-000438 | SA     |
| C144       | C-CER,CHIP          | 2203-000812 | SA     |
| C150       | C-CER,CHIP          | 2203-000278 | SA     |
| C201       | C-CER,CHIP          | 2203-006194 | SA     |
| C202       | C-CER,CHIP          | 2203-006423 | SA     |
| C203       | C-CER,CHIP          | 2203-006423 | SA     |
| C204       | C-CER,CHIP          | 2203-006423 | SA     |
| C205       | C-CER,CHIP          | 2203-006423 | SA     |
| C206       | C-CER,CHIP          | 2203-006423 | SA     |
| C207       | C-CER,CHIP          | 2203-006423 | SA     |
| C208       | C-CER,CHIP          | 2203-006423 | SA     |
| C209       | C-CER,CHIP          | 2203-006423 | SA     |
| C210       | C-CER,CHIP          | 2203-006562 | SA     |
| C211       | C-CER,CHIP          | 2203-006423 | SA     |
| C212       | C-CER,CHIP          | 2203-006423 | SA     |
| C213       | C-CER,CHIP          | 2203-006423 | SA     |

| Design LOC | Description | SEC Code    | STATUS |
|------------|-------------|-------------|--------|
| C218       | C-CER,CHIP  | 2203-006048 | SA     |
| C219       | C-CER,CHIP  | 2203-006423 | SA     |
| C221       | C-CER,CHIP  | 2203-005682 | SA     |
| C301       | C-CER,CHIP  | 2203-006048 | SA     |
| C302       | C-CER,CHIP  | 2203-000254 | SA     |
| C303       | C-CER,CHIP  | 2203-006423 | SA     |
| C304       | C-CER,CHIP  | 2203-006423 | SA     |
| C305       | C-CER,CHIP  | 2203-006423 | SA     |
| C306       | C-CER,CHIP  | 2203-006423 | SA     |
| C307       | C-CER,CHIP  | 2203-000330 | SA     |
| C308       | C-CER,CHIP  | 2203-000330 | SA     |
| C309       | C-CER,CHIP  | 2203-006048 | SA     |
| C321       | C-CER,CHIP  | 2203-006562 | SA     |
| C325       | C-CER,CHIP  | 2203-006048 | SA     |
| C326       | C-CER,CHIP  | 2203-000233 | SA     |
| C401       | C-CER,CHIP  | 2203-006562 | SA     |
| C402       | C-CER,CHIP  | 2203-006838 | SA     |
| C403       | C-CER,CHIP  | 2203-006824 | SA     |
| C405       | C-CER,CHIP  | 2203-006048 | SA     |
| C406       | C-CER,CHIP  | 2203-006257 | SA     |
| C407       | C-CER,CHIP  | 2203-000628 | SA     |
| C408       | C-CER,CHIP  | 2203-000628 | SA     |
| C411       | C-CER,CHIP  | 2203-000812 | SA     |
| C412       | C-CER,CHIP  | 2203-006824 | SA     |
| C413       | C-CER,CHIP  | 2203-006257 | SA     |
| C414       | C-CER,CHIP  | 2203-006824 | SA     |
| C416       | C-CER,CHIP  | 2203-006562 | SA     |
| C417       | C-CER,CHIP  | 2203-006562 | SA     |
| C418       | C-CER,CHIP  | 2203-006562 | SA     |
| C419       | C-CER,CHIP  | 2203-006562 | SA     |
| C420       | C-CER,CHIP  | 2203-006838 | SA     |
| C421       | C-CER,CHIP  | 2203-006562 | SA     |
| C422       | C-CER,CHIP  | 2203-006824 | SA     |
| C423       | C-CER,CHIP  | 2203-006824 | SA     |
| C424       | C-CER,CHIP  | 2203-006257 | SA     |
| C425       | C-CER,CHIP  | 2203-006257 | SA     |
| C426       | C-CER,CHIP  | 2203-000233 | SA     |
| C427       | C-CER,CHIP  | 2203-006562 | SA     |
| C428       | C-CER,CHIP  | 2203-006838 | SA     |
| C429       | C-CER,CHIP  | 2203-006257 | SA     |
| C430       | C-CER,CHIP  | 2203-006708 | SA     |
| C431       | C-CER,CHIP  | 2203-006562 | SA     |
| C433       | C-CER,CHIP  | 2203-005482 | SA     |
| C501       | C-CER,CHIP  | 2203-006048 | SA     |
| C503       | C-CER,CHIP  | 2203-005390 | SA     |
| C505       | C-CER,CHIP  | 2203-006048 | SA     |
| C514       | C-CER,CHIP  | 2203-006048 | SA     |
| C520       | C-CER,CHIP  | 2203-000870 | SA     |
| C521       | C-CER,CHIP  | 2203-006048 | SA     |
| C522       | C-CER,CHIP  | 2203-006648 | SA     |
| C538       | C-CER,CHIP  | 2203-006562 | SA     |
| C539       | C-CER,CHIP  | 2203-005344 | SA     |
| C541       | C-CER,CHIP  | 2203-005344 | SA     |

| Design LOC | Description | SEC Code    | STATUS |
|------------|-------------|-------------|--------|
| C542       | C-CER,CHIP  | 2203-005344 | SA     |
| C545       | C-CER,CHIP  | 2203-005344 | SA     |
| C550       | C-CER,CHIP  | 2203-000438 | SA     |
| C551       | C-CER,CHIP  | 2203-000438 | SA     |
| C556       | C-CER,CHIP  | 2203-006048 | SA     |
| C563       | C-CER,CHIP  | 2203-000854 | SA     |
| C564       | C-CER,CHIP  | 2203-000854 | SA     |
| C566       | C-CER,CHIP  | 2203-006048 | SA     |
| C567       | C-CER,CHIP  | 2203-000812 | SA     |
| C568       | C-CER,CHIP  | 2203-000812 | SA     |
| C569       | C-CER,CHIP  | 2203-006562 | SA     |
| C570       | C-CER,CHIP  | 2203-006562 | SA     |
| C600       | C-CER,CHIP  | 2203-006423 | SA     |
| C601       | C-CER,CHIP  | 2203-006562 | SA     |
| C602       | C-CER,CHIP  | 2203-006626 | SA     |
| C604       | C-CER,CHIP  | 2203-006048 | SA     |
| C605       | C-CER,CHIP  | 2203-006048 | SA     |
| C606       | C-CER,CHIP  | 2203-006048 | SA     |
| C609       | C-CER,CHIP  | 2203-006562 | SA     |
| C610       | C-CER,CHIP  | 2203-006048 | SA     |
| C611       | C-CER,CHIP  | 2203-006048 | SA     |
| C617       | C-CER,CHIP  | 2203-006562 | SA     |
| C618       | C-CER,CHIP  | 2203-006562 | SA     |
| C620       | C-CER,CHIP  | 2203-006048 | SA     |
| C621       | C-CER,CHIP  | 2203-006324 | SA     |
| C622       | C-CER,CHIP  | 2203-002487 | SA     |
| C623       | C-CER,CHIP  | 2203-006048 | SA     |
| C624       | C-CER,CHIP  | 2203-006048 | SA     |
| C630       | C-CER,CHIP  | 2203-002709 | SA     |
| C631       | C-CER,CHIP  | 2203-005482 | SA     |
| C632       | C-CER,CHIP  | 2203-006562 | SA     |
| C633       | C-TA,CHIP   | 2404-001225 | SA     |
| C634       | C-CER,CHIP  | 2203-005482 | SA     |
| C705       | C-CER,CHIP  | 2203-005682 | SA     |
| C706       | C-CER,CHIP  | 2203-005682 | SA     |
| C707       | C-CER,CHIP  | 2203-005682 | SA     |
| C708       | C-CER,CHIP  | 2203-005682 | SA     |
| C709       | C-CER,CHIP  | 2203-005682 | SA     |
| C712       | C-CER,CHIP  | 2203-006562 | SA     |
| C714       | C-CER,CHIP  | 2203-006562 | SA     |
| C715       | C-CER,CHIP  | 2203-006562 | SA     |
| C716       | C-CER,CHIP  | 2203-006562 | SA     |
| C717       | C-CER,CHIP  | 2203-006324 | SA     |
| C719       | C-CER,CHIP  | 2203-005682 | SA     |
| C720       | C-CER,CHIP  | 2203-005682 | SA     |
| C721       | C-CER,CHIP  | 2203-005682 | SA     |
| C722       | C-CER,CHIP  | 2203-005682 | SA     |
| C723       | C-CER,CHIP  | 2203-005682 | SA     |
| C724       | C-CER,CHIP  | 2203-005682 | SA     |
| C725       | C-CER,CHIP  | 2203-005682 | SA     |
| C726       | C-CER,CHIP  | 2203-005682 | SA     |
| C727       | C-CER,CHIP  | 2203-006423 | SA     |
| C728       | C-CER,CHIP  | 2203-005682 | SA     |

| Design LOC | Description           | SEC Code    | STATUS |
|------------|-----------------------|-------------|--------|
| C729       | C-CER,CHIP            | 2203-006423 | SA     |
| C730       | C-CER,CHIP            | 2203-005682 | SA     |
| C731       | C-CER,CHIP            | 2203-005682 | SA     |
| C732       | C-CER,CHIP            | 2203-005682 | SA     |
| C733       | C-CER,CHIP            | 2203-006423 | SA     |
| C736       | C-CER,CHIP            | 2203-005682 | SA     |
| C738       | C-CER,CHIP            | 2203-005682 | SA     |
| C740       | C-CER,CHIP            | 2203-005682 | SA     |
| C755       | C-CER,CHIP            | 2203-006048 | SA     |
| C756       | C-CER,CHIP            | 2203-005682 | SA     |
| C757       | C-CER,CHIP            | 2203-005682 | SA     |
| C758       | C-CER,CHIP            | 2203-005682 | SA     |
| C759       | C-CER,CHIP            | 2203-005682 | SA     |
| C760       | C-CER,CHIP            | 2203-000254 | SA     |
| C761       | C-CER,CHIP            | 2203-000254 | SA     |
| C762       | C-CER,CHIP            | 2203-000254 | SA     |
| C763       | C-CER,CHIP            | 2203-000254 | SA     |
| C766       | C-CER,CHIP            | 2203-005682 | SA     |
| C767       | C-CER,CHIP            | 2203-005682 | SA     |
| C772       | C-CER,CHIP            | 2203-005682 | SA     |
| C773       | C-CER,CHIP            | 2203-005682 | SA     |
| C774       | C-CER,CHIP            | 2203-005682 | SA     |
| C781       | C-CER,CHIP            | 2203-005682 | SA     |
| CD300      | CONNECTOR-CARD EDGE   | 3709-001344 | SA     |
| CN701      | SOCKET-BOARD TO BOARD | 3710-002081 | SA     |
| CN702      | SOCKET-BOARD TO BOARD | 3710-002081 | SA     |
| D309       | DIODE-TVS             | 0406-001200 | SA     |
| D400       | DIODE-ARRAY           | 0407-001002 | SA     |
| D403       | DIODE-SCHOTTKY        | 0404-001172 | SA     |
| D500       | DIODE-SCHOTTKY        | 0404-001172 | SA     |
| D516       | DIODE-TVS             | 0406-001208 | SA     |
| D517       | DIODE-TVS             | 0406-001150 | SA     |
| F101       | FILTER-EMI SMD        | 2901-001254 | SA     |
| F500       | FILTER-EMI/ESD        | 2901-001322 | SA     |
| F600       | FILTER-EMI SMD        | 2901-001254 | SA     |
| HDC700     | HEADER-BOARD TO BOARD | 3711-005659 | SA     |
| HDC701     | HEADER-BOARD TO BOARD | 3711-005643 | SA     |
| IFC500     | SOCKET-INTERFACE      | 3710-002442 | SA     |
| L106       | INDUCTOR-SMD          | 2703-002155 | SA     |
| L107       | INDUCTOR-SMD          | 2703-002203 | SA     |
| L109       | INDUCTOR-SMD          | 2703-002267 | SA     |
| L110       | INDUCTOR-SMD          | 2703-002267 | SA     |
| L113       | C-CER,CHIP            | 2203-000696 | SA     |
| L114       | INDUCTOR-SMD          | 2703-002369 | SA     |
| L130       | BEAD-SMD              | 3301-001534 | SA     |
| L133       | INDUCTOR-SMD          | 2703-002365 | SA     |
| L134       | INDUCTOR-SMD          | 2703-002544 | SA     |
| L135       | INDUCTOR-SMD          | 2703-002368 | SA     |
| L136       | INDUCTOR-SMD          | 2703-002369 | SA     |
| L401       | BEAD-SMD              | 3301-001120 | SA     |
| L402       | INDUCTOR-SMD          | 2703-002653 | SA     |
| L405       | BEAD-SMD              | 3301-001729 | SA     |
| L500       | INDUCTOR-SMD          | 2703-001723 | SA     |

| Design LOC | Description  | SEC Code    | STATUS |
|------------|--------------|-------------|--------|
| L501       | INDUCTOR-SMD | 2703-001723 | SA     |
| L502       | BEAD-SMD     | 3301-001756 | SA     |
| L503       | BEAD-SMD     | 3301-001756 | SA     |
| L504       | BEAD-SMD     | 3301-001729 | SA     |
| L602       | BEAD-SMD     | 3301-001729 | SA     |
| L603       | BEAD-SMD     | 3301-001729 | SA     |
| L604       | BEAD-SMD     | 3301-001729 | SA     |
| L702       | BEAD-SMD     | 3301-001729 | SA     |
| OSC300     | CRYSTAL-SMD  | 2801-004340 | SA     |
| OSC400     | CRYSTAL-SMD  | 2801-004373 | SA     |
| PAM100     | IC-POWER AMP | 1201-002423 | SA     |
| R104       | R-CHIP       | 2007-001284 | SA     |
| R105       | R-CHIP       | 2007-000172 | SA     |
| R106       | R-CHIP       | 2007-001316 | SA     |
| R107       | R-CHIP       | 2007-000140 | SA     |
| R116       | R-CHIP       | 2007-000140 | SA     |
| R120       | R-CHIP       | 2007-000171 | SA     |
| R122       | R-CHIP       | 2007-000171 | SA     |
| R123       | R-CHIP       | 2007-000171 | SA     |
| R124       | R-CHIP       | 2007-000171 | SA     |
| R125       | R-CHIP       | 2007-000171 | SA     |
| R126       | R-CHIP       | 2007-000140 | SA     |
| R127       | R-CHIP       | 2007-000172 | SA     |
| R138       | R-CHIP       | 2007-000171 | SA     |
| R200       | R-CHIP       | 2007-000171 | SA     |
| R201       | R-CHIP       | 2007-008516 | SA     |
| R202       | R-CHIP       | 2007-000168 | SA     |
| R208       | R-CHIP       | 2007-000758 | SA     |
| R210       | R-CHIP       | 2007-008478 | SA     |
| R211       | R-CHIP       | 2007-008478 | SA     |
| R219       | R-CHIP       | 2007-008052 | SA     |
| R220       | R-CHIP       | 2007-000148 | SA     |
| R223       | R-CHIP       | 2007-000162 | SA     |
| R224       | R-CHIP       | 2007-000162 | SA     |
| R261       | R-CHIP       | 2007-000162 | SA     |
| R300       | R-CHIP       | 2007-000162 | SA     |
| R301       | R-CHIP       | 2007-008055 | SA     |
| R304       | R-CHIP       | 2007-000148 | SA     |
| R305       | R-CHIP       | 2007-000170 | SA     |
| R306       | R-CHIP       | 2007-007136 | SA     |
| R307       | R-CHIP       | 2007-000157 | SA     |
| R320       | R-CHIP       | 2007-000162 | SA     |
| R322       | R-CHIP       | 2007-000140 | SA     |
| R323       | R-CHIP       | 2007-000162 | SA     |
| R324       | R-CHIP       | 2007-000159 | SA     |
| R325       | R-CHIP       | 2007-000162 | SA     |
| R327       | R-CHIP       | 2007-000166 | SA     |
| R328       | R-CHIP       | 2007-008055 | SA     |
| R333       | R-CHIP       | 2007-000162 | SA     |
| R339       | R-CHIP       | 2007-000171 | SA     |
| R340       | R-CHIP       | 2007-008055 | SA     |
| R341       | R-CHIP       | 2007-000171 | SA     |
| R342       | R-CHIP       | 2007-000171 | SA     |

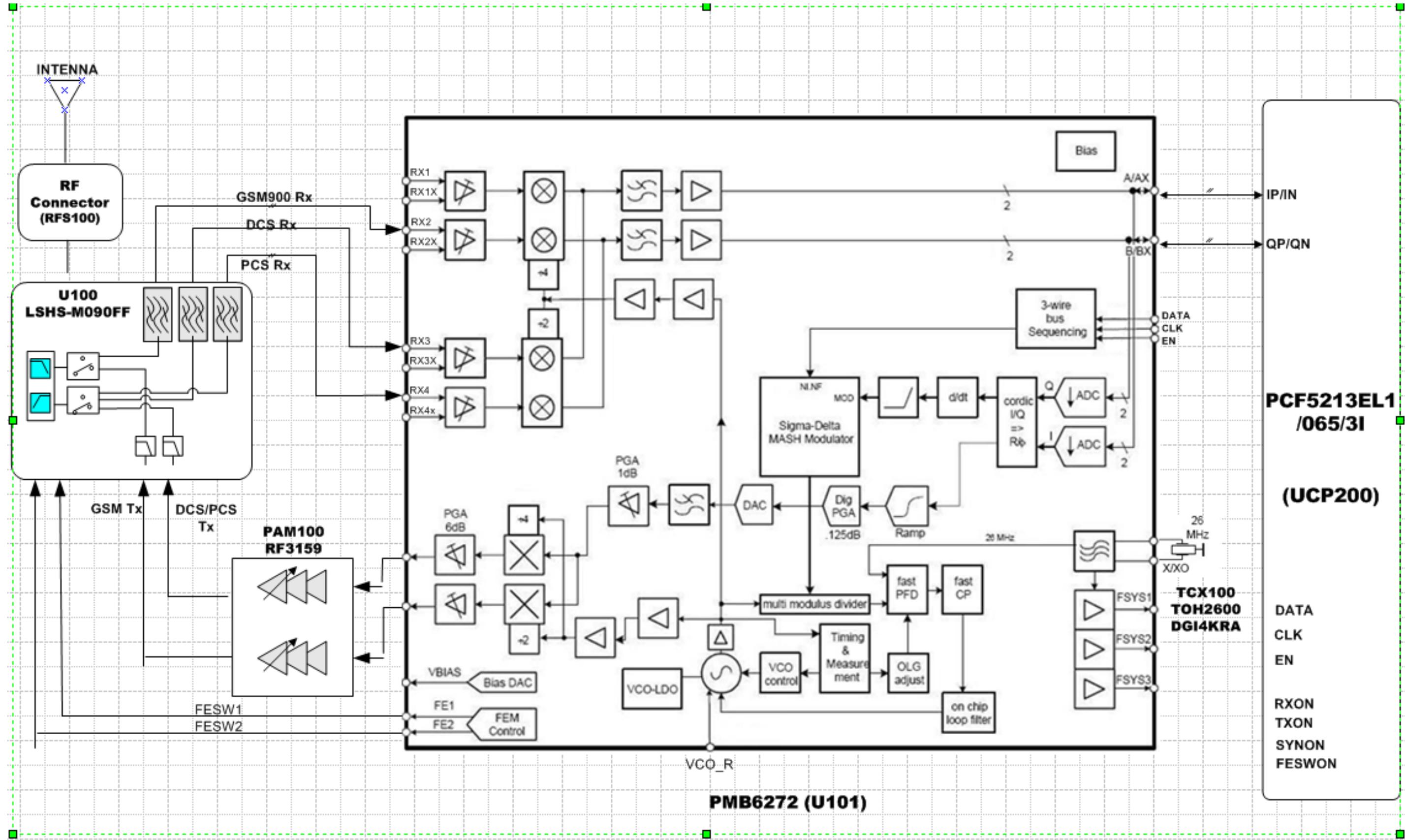
| Design LOC | Description | SEC Code    | STATUS |
|------------|-------------|-------------|--------|
| R343       | R-CHIP      | 2007-000157 | SA     |
| R401       | R-CHIP      | 2007-000162 | SA     |
| R402       | R-CHIP      | 2007-000162 | SA     |
| R403       | R-CHIP      | 2007-000162 | SA     |
| R404       | R-CHIP      | 2007-000758 | SA     |
| R406       | R-CHIP      | 2007-007100 | SA     |
| R500       | R-CHIP      | 2007-002796 | SA     |
| R501       | R-CHIP      | 2007-000140 | SA     |
| R504       | R-CHIP      | 2007-007573 | SA     |
| R505       | R-CHIP      | 2007-000140 | SA     |
| R506       | R-CHIP      | 2007-002796 | SA     |
| R507       | R-CHIP      | 2007-002796 | SA     |
| R508       | R-CHIP      | 2007-000162 | SA     |
| R509       | R-CHIP      | 2007-009170 | SA     |
| R511       | R-CHIP      | 2007-008419 | SA     |
| R512       | R-CHIP      | 2007-008419 | SA     |
| R513       | R-CHIP      | 2007-002796 | SA     |
| R514       | R-CHIP      | 2007-000171 | SA     |
| R515       | R-CHIP      | 2007-000171 | SA     |
| R520       | R-CHIP      | 2007-007009 | SA     |
| R522       | R-CHIP      | 2007-001306 | SA     |
| R530       | R-CHIP      | 2007-000171 | SA     |
| R531       | R-CHIP      | 2007-000171 | SA     |
| R532       | R-CHIP      | 2007-000171 | SA     |
| R533       | R-CHIP      | 2007-000171 | SA     |
| R535       | R-CHIP      | 2007-000162 | SA     |
| R537       | R-CHIP      | 2007-007142 | SA     |
| R538       | R-CHIP      | 2007-007334 | SA     |
| R550       | R-CHIP      | 2007-000162 | SA     |
| R551       | R-CHIP      | 2007-007132 | SA     |
| R558       | R-CHIP      | 2007-007132 | SA     |
| R561       | R-CHIP      | 2007-000162 | SA     |
| R565       | R-CHIP      | 2007-008531 | SA     |
| R567       | R-CHIP      | 2007-008531 | SA     |
| R568       | R-CHIP      | 2007-000148 | SA     |
| R569       | R-CHIP      | 2007-000148 | SA     |
| R600       | R-CHIP      | 2007-008516 | SA     |
| R601       | R-CHIP      | 2007-007107 | SA     |
| R603       | R-CHIP      | 2007-000168 | SA     |
| R604       | R-CHIP      | 2007-008483 | SA     |
| R605       | R-CHIP      | 2007-007573 | SA     |
| R606       | R-CHIP      | 2007-000142 | SA     |
| R607       | R-CHIP      | 2007-007318 | SA     |
| R608       | R-CHIP      | 2007-007588 | SA     |
| R609       | R-CHIP      | 2007-007334 | SA     |
| R612       | R-CHIP      | 2007-000170 | SA     |
| R613       | R-CHIP      | 2007-000170 | SA     |
| R617       | R-CHIP      | 2007-000148 | SA     |
| R618       | R-CHIP      | 2007-000162 | SA     |
| R620       | R-CHIP      | 2007-007312 | SA     |
| R621       | R-CHIP      | 2007-000162 | SA     |
| R700       | R-CHIP      | 2007-008275 | SA     |
| R701       | R-CHIP      | 2007-000141 | SA     |

| Design LOC | Description         | SEC Code    | STATUS |
|------------|---------------------|-------------|--------|
| R718       | R-CHIP              | 2007-000141 | SA     |
| R834       | R-CHIP              | 2007-000171 | SA     |
| RFS100     | CONNECTOR-COAXIAL   | 3705-001358 | SA     |
| SIM400     | CONNECTOR-CARD EDGE | 3709-001400 | SA     |
| SW700      | SWITCH-TACT         | 3404-001303 | SA     |
| SW701      | SWITCH-TACT         | 3404-001303 | SA     |
| SW702      | SWITCH-TACT         | 3404-001303 | SA     |
| SW703      | SWITCH-TACT         | 3404-001303 | SA     |
| TA400      | C-TA,CHIP           | 2404-001381 | SA     |
| TA410      | C-TA,CHIP           | 2404-001381 | SA     |
| TA428      | C-TA,CHIP           | 2404-001375 | SA     |
| TA500      | C-TA,CHIP           | 2404-001422 | SA     |
| TA502      | C-TA,CHIP           | 2404-001281 | SA     |
| TA534      | C-TA,CHIP           | 2404-001381 | SA     |
| TA557      | C-TA,CHIP           | 2404-001381 | SA     |
| TA560      | C-TA,CHIP           | 2404-001377 | SA     |
| TA561      | C-TA,CHIP           | 2404-001377 | SA     |
| TA562      | C-TA,CHIP           | 2404-001281 | SA     |
| TA603      | C-TA,CHIP           | 2404-001268 | SA     |
| TA700      | C-TA,CHIP           | 2404-001339 | SA     |
| TCX100     | OSCILLATOR-VCTCXO   | 2809-001281 | SA     |
| TR600      | TR-DIGITAL          | 0504-001151 | SA     |
| U100       | DUPLEXER-FEM        | 2911-000057 | SA     |
| U101       | IC-TRANSCEIVER      | 1205-003057 | SA     |
| U102       | IC-POSI.FIXED REG.  | 1203-003767 | SA     |
| U103       | BLUETOOTH MODULE    | 4709-001445 | SA     |
| U201       | IC-ANALOG SWITCH    | 1001-001231 | SA     |
| U305       | IC-CMOS LOGIC       | 0801-002237 | SA     |
| U310       | IC-POSI.FIXED REG.  | 1203-003829 | SA     |
| U311       | IC-CMOS LOGIC       | 0801-002237 | SA     |
| U315       | IC-CODEC            | 1205-003094 | SA     |
| U400       | IC-POWER SUPERVISOR | 1203-003882 | SA     |
| U401       | IC-DC/DC CONVERTER  | 1203-003545 | SA     |
| U402       | IC-POSI.FIXED REG.  | 1203-003754 | SA     |
| U403       | IC-POSI.FIXED REG.  | 1203-003767 | SA     |
| U404       | IC-POSI.FIXED REG.  | 1203-003767 | SA     |
| U405       | IC-POSI.FIXED REG.  | 1203-003754 | SA     |
| U406       | IC-POSI.FIXED REG.  | 1203-003754 | SA     |
| U407       | IC-POSI.FIXED REG.  | 1203-003737 | SA     |
| U500       | IC-ANALOG SWITCH    | 1001-001231 | SA     |
| U501       | IC-ANALOG SWITCH    | 1001-001231 | SA     |
| U503       | IC-VIDEO AMP        | 1201-002147 | SA     |
| U504       | IC-AUDIO AMP        | 1201-002233 | SA     |
| U505       | IC-ANALOG SWITCH    | 1001-001231 | SA     |
| U506       | IC-ANALOG SWITCH    | 1001-001231 | SA     |
| U507       | IC-ANALOG SWITCH    | 1001-001231 | SA     |
| U508       | IC-ANALOG MULTIPLEX | 1001-001349 | SA     |
| U601       | FILTER-EMI SMD      | 2901-001316 | SA     |
| U603       | IC-CODEC            | 1205-003046 | SA     |
| U605       | IC-BATTERY          | 1203-003823 | SA     |
| U606       | IC-LCD CONTROLLER   | 1003-001803 | SA     |
| U700       | IC-DC/DC CONVERTER  | 1203-004372 | SA     |
| UCP200     | IC-COMM. CONTROLLER | 1205-002757 | SA     |

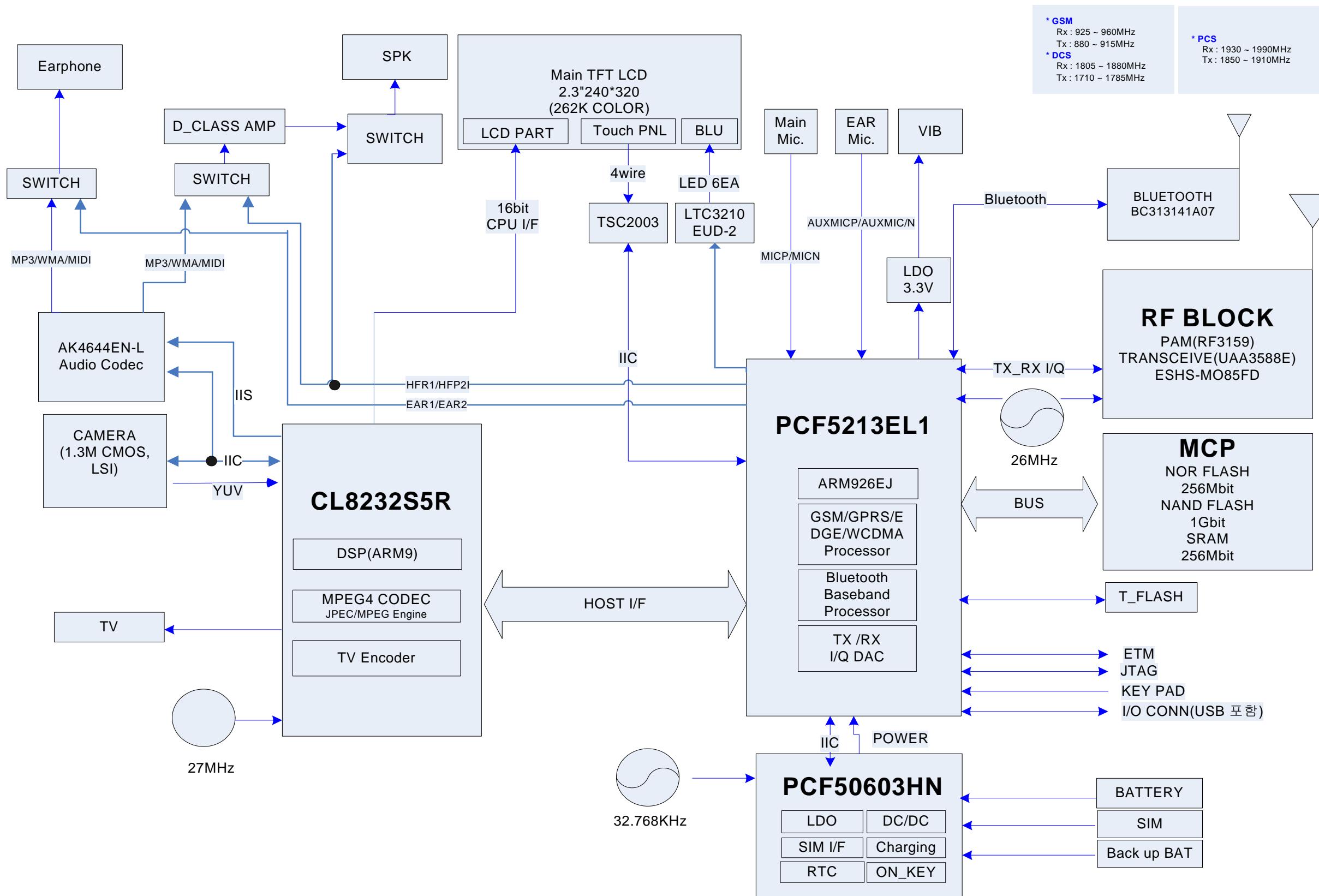
| <b>Design LOC</b> | <b>Description</b> | <b>SEC Code</b> | <b>STATUS</b> |
|-------------------|--------------------|-----------------|---------------|
| UME307            | IC-MCP             | 1108-000076     | SA            |
| V400              | VARISTOR           | 1405-001082     | SA            |
| V401              | VARISTOR           | 1405-001082     | SA            |
| VR300             | DIODE-TVS          | 0406-001201     | SA            |
| VR301             | VARISTOR           | 1405-001082     | SA            |
| VR302             | DIODE-TVS          | 0406-001201     | SA            |
| VR303             | VARISTOR           | 1405-001082     | SA            |
| VR304             | VARISTOR           | 1405-001082     | SA            |
| VR305             | VARISTOR           | 1405-001082     | SA            |
| VR400             | VARISTOR           | 1405-001082     | SA            |
| VR500             | VARISTOR           | 1405-001082     | SA            |
| VR501             | VARISTOR           | 1405-001082     | SA            |
| VR600             | THERMISTOR-NTC     | 1404-001221     | SA            |
| ZD600             | DIODE-ZENER        | 0403-001547     | SA            |
| ZD601             | DIODE-TVS          | 0406-001201     | SA            |
| ZD605             | DIODE-ZENER        | 0403-001427     | SA            |
| ZD700             | DIODE-TVS          | 0406-001201     | SA            |
| ZD701             | DIODE-TVS          | 0406-001201     | SA            |
| ZD702             | DIODE-TVS          | 0406-001201     | SA            |
| ZD703             | DIODE-TVS          | 0406-001201     | SA            |
| ZD704             | DIODE-TVS          | 0406-001201     | SA            |
| ZD705             | DIODE-TVS          | 0406-001201     | SA            |
| ZD706             | DIODE-TVS          | 0406-001201     | SA            |
| ZD707             | DIODE-TVS          | 0406-001201     | SA            |
| ZD708             | DIODE-TVS          | 0406-001201     | SA            |
| ZD709             | DIODE-TVS          | 0406-001201     | SA            |
| ZD710             | DIODE-TVS          | 0406-001201     | SA            |
| ZD711             | DIODE-TVS          | 0406-001201     | SA            |
| ZD712             | DIODE-TVS          | 0406-001201     | SA            |
| ZD713             | DIODE-TVS          | 0406-001254     | SA            |
| ZD714             | DIODE-TVS          | 0406-001254     | SA            |
| ZD715             | DIODE-TVS          | 0406-001254     | SA            |
| ZD716             | DIODE-TVS          | 0406-001254     | SA            |
| ZD717             | DIODE-TVS          | 0406-001254     | SA            |
| ZD718             | DIODE-TVS          | 0406-001254     | SA            |
| ZD719             | DIODE-TVS          | 0406-001201     | SA            |
| ZD720             | DIODE-TVS          | 0406-001201     | SA            |
| ZD721             | DIODE-TVS          | 0406-001208     | SA            |

## 7. Block Diagrams

### 7-1. RF Solution Block Diagram



## 7-2. Base Band Solution Block Diagram

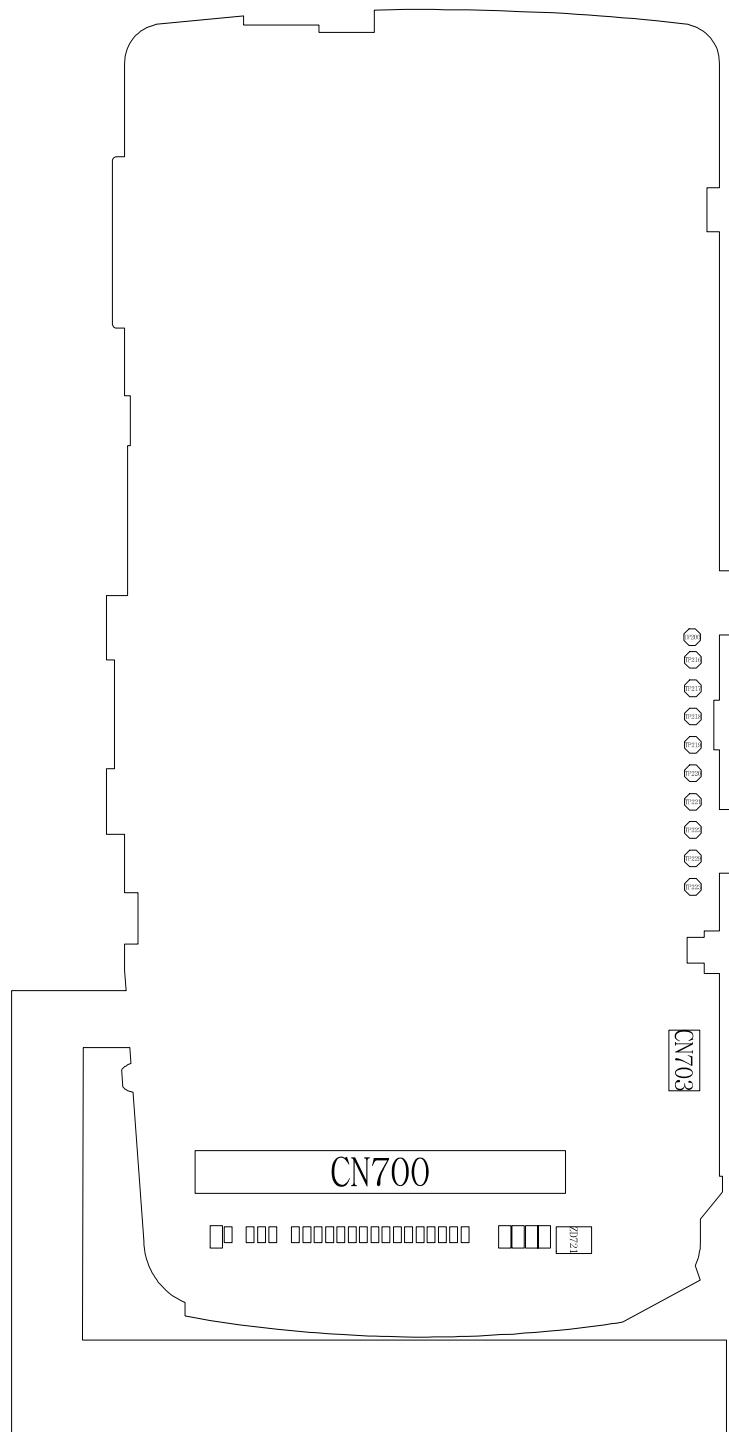


---

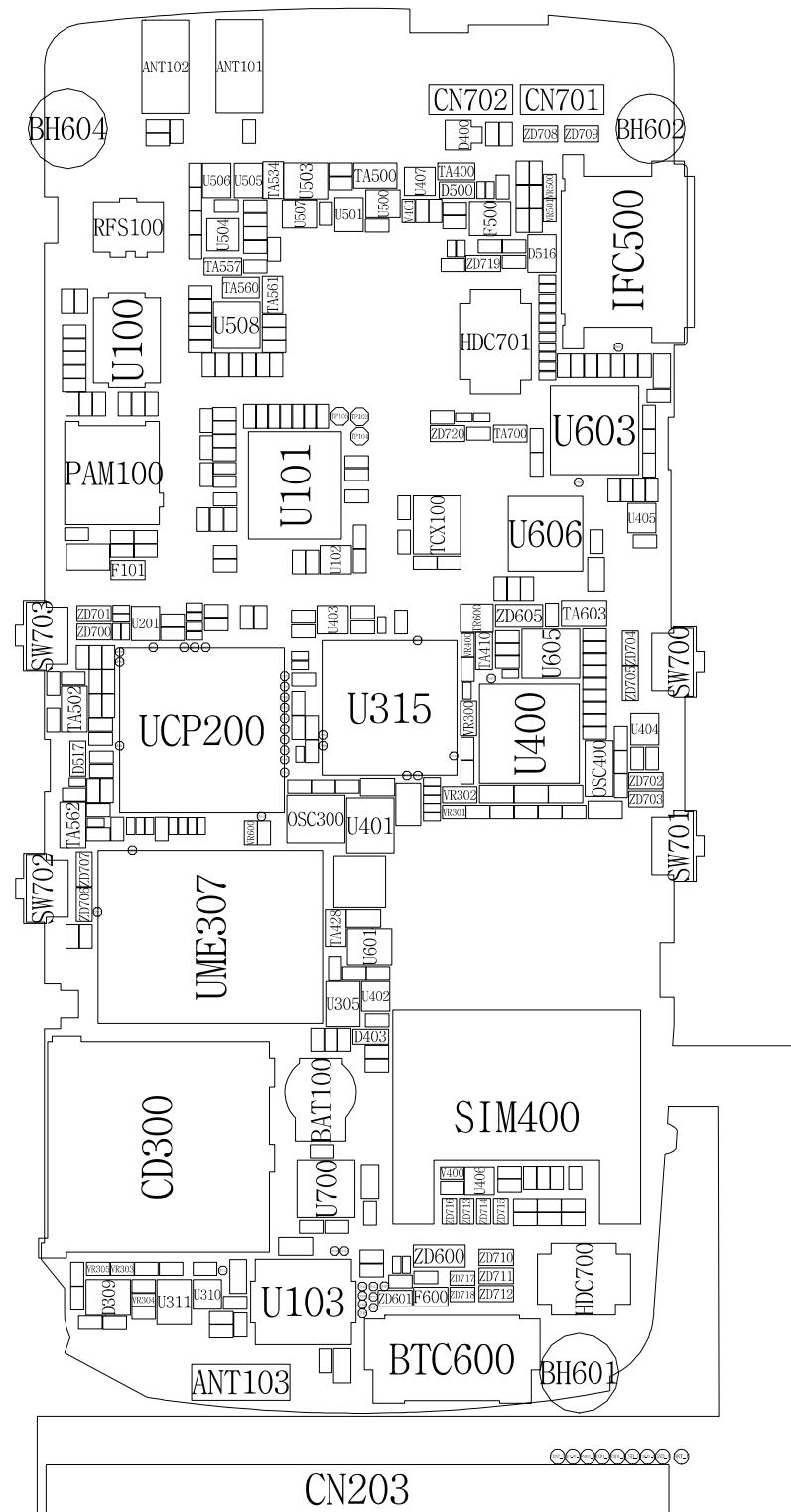
## 8. PCB Diagrams

---

Top

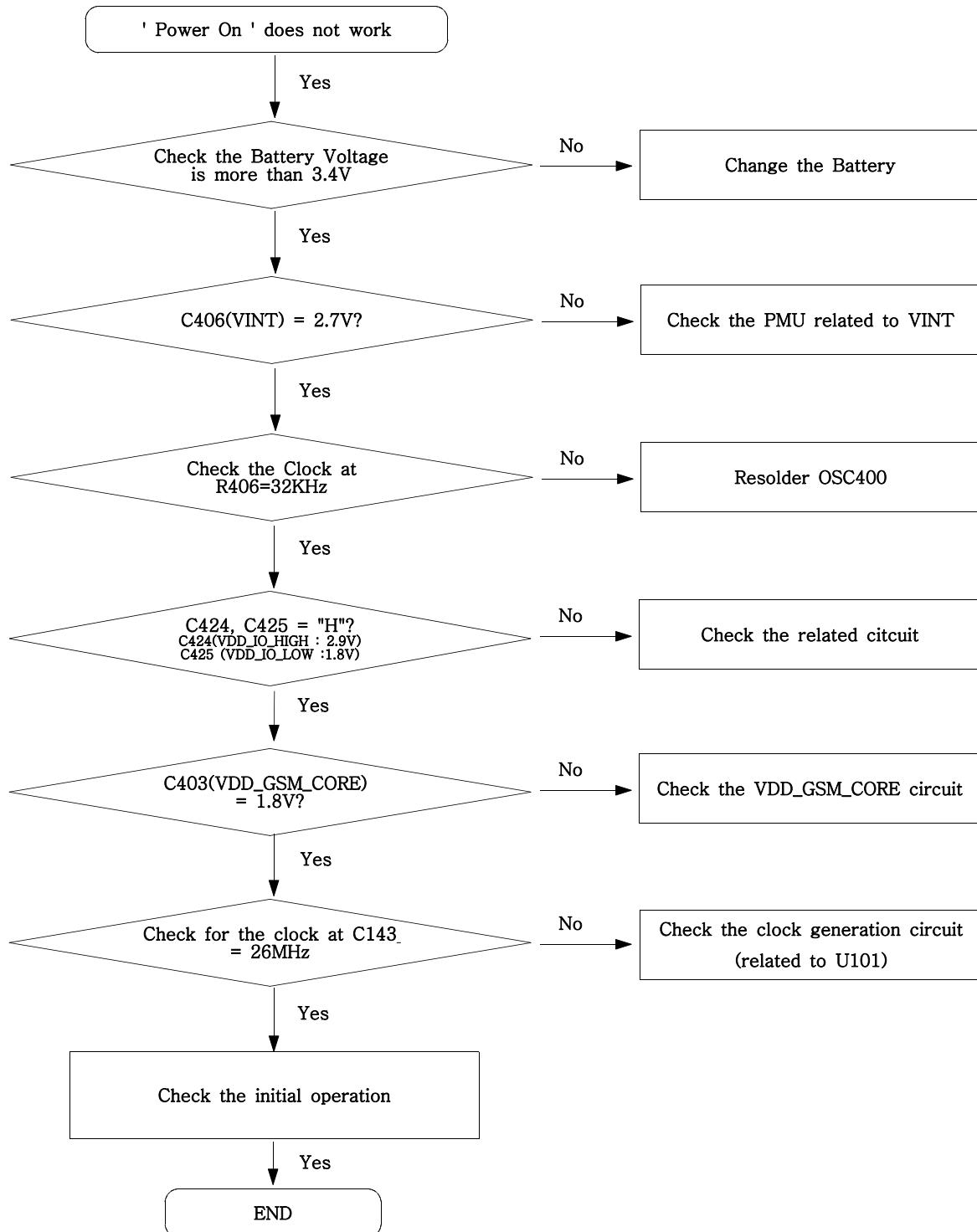


Bottom

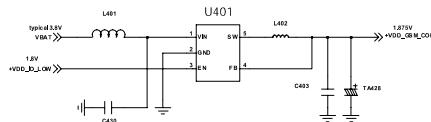


## 9. Flow Chart of Troubleshooting

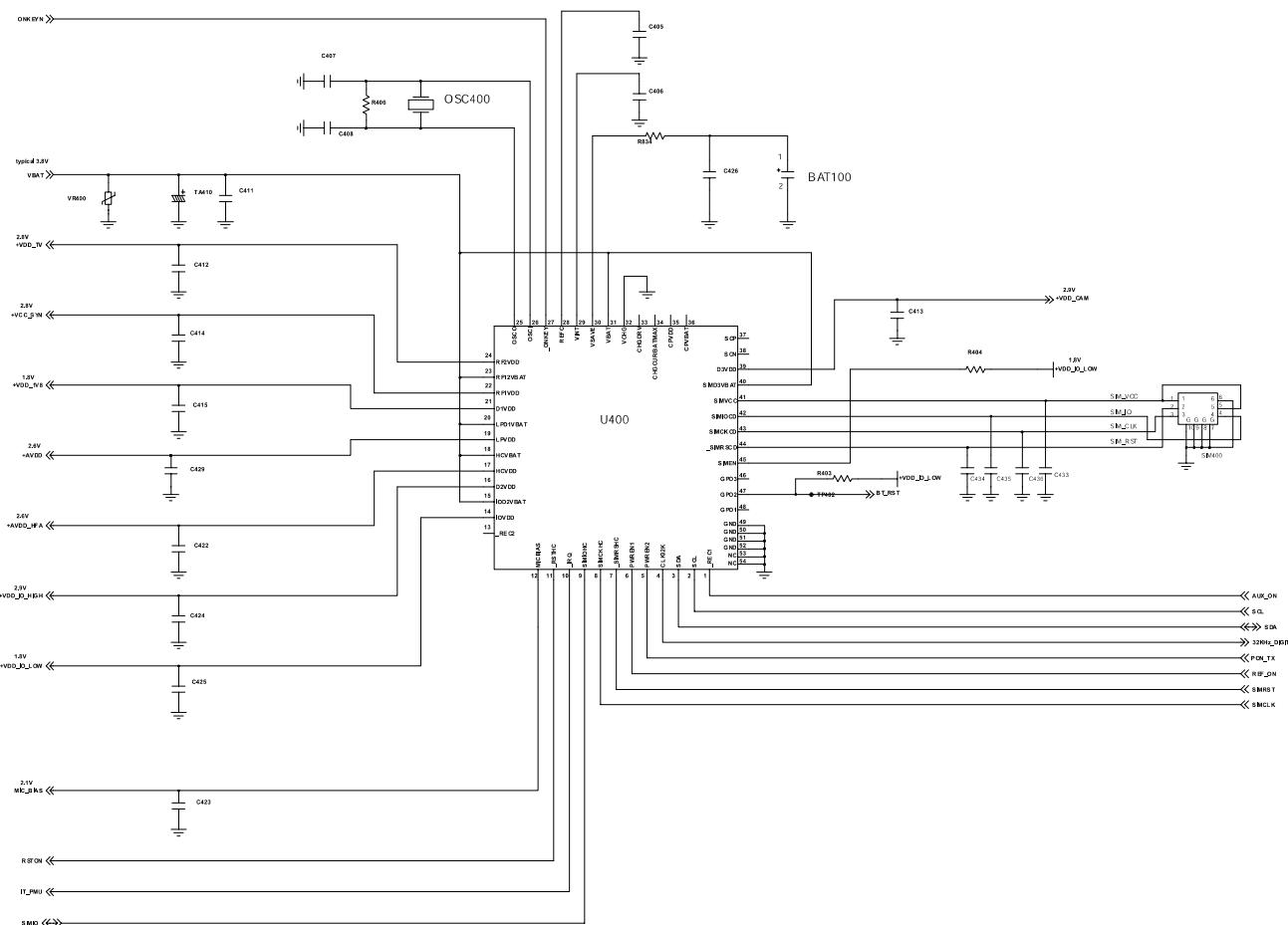
### 9-1. Power On

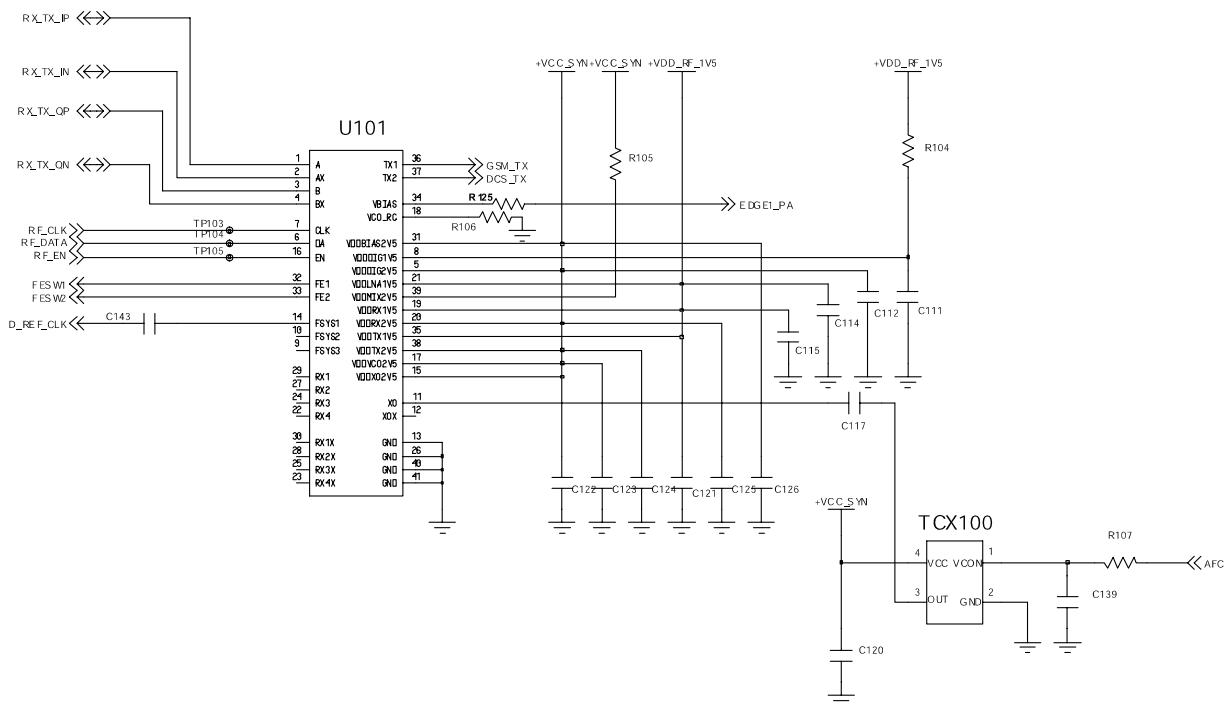


## Flow Chart of Troubleshooting

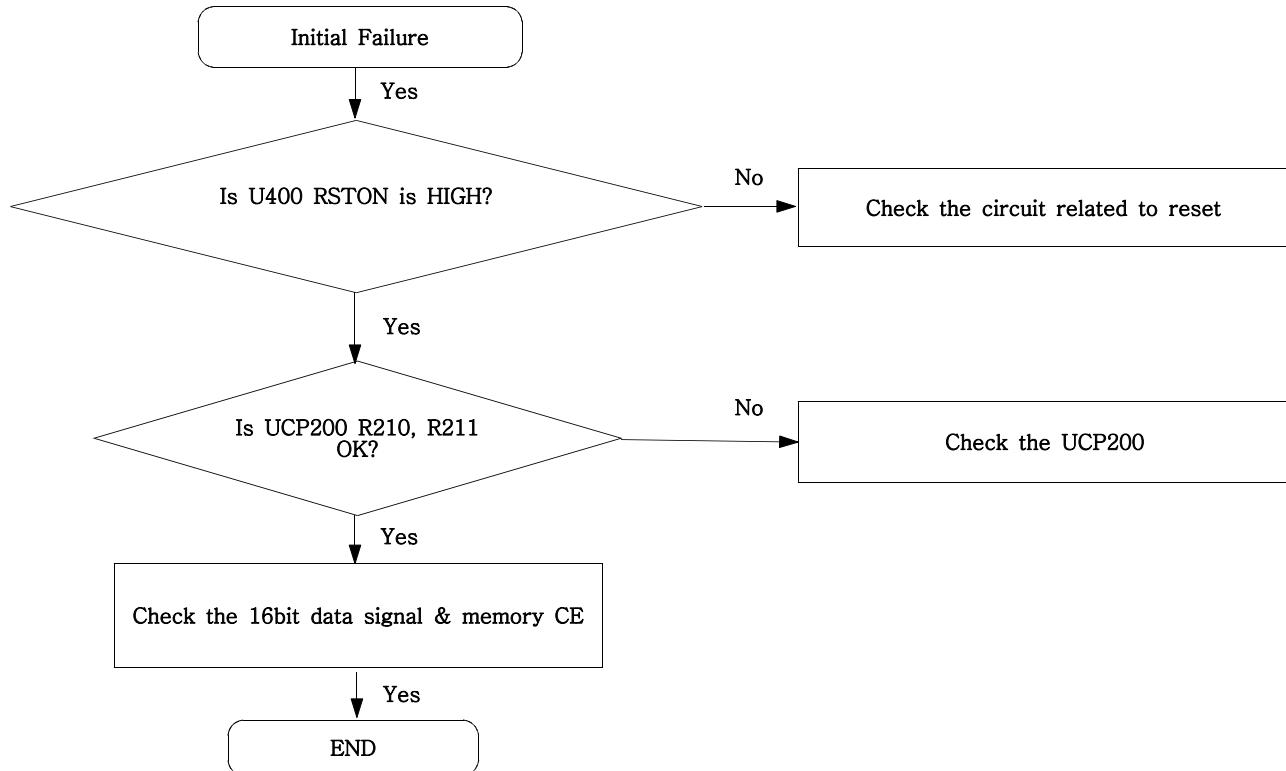


## DC/DC Down Convete

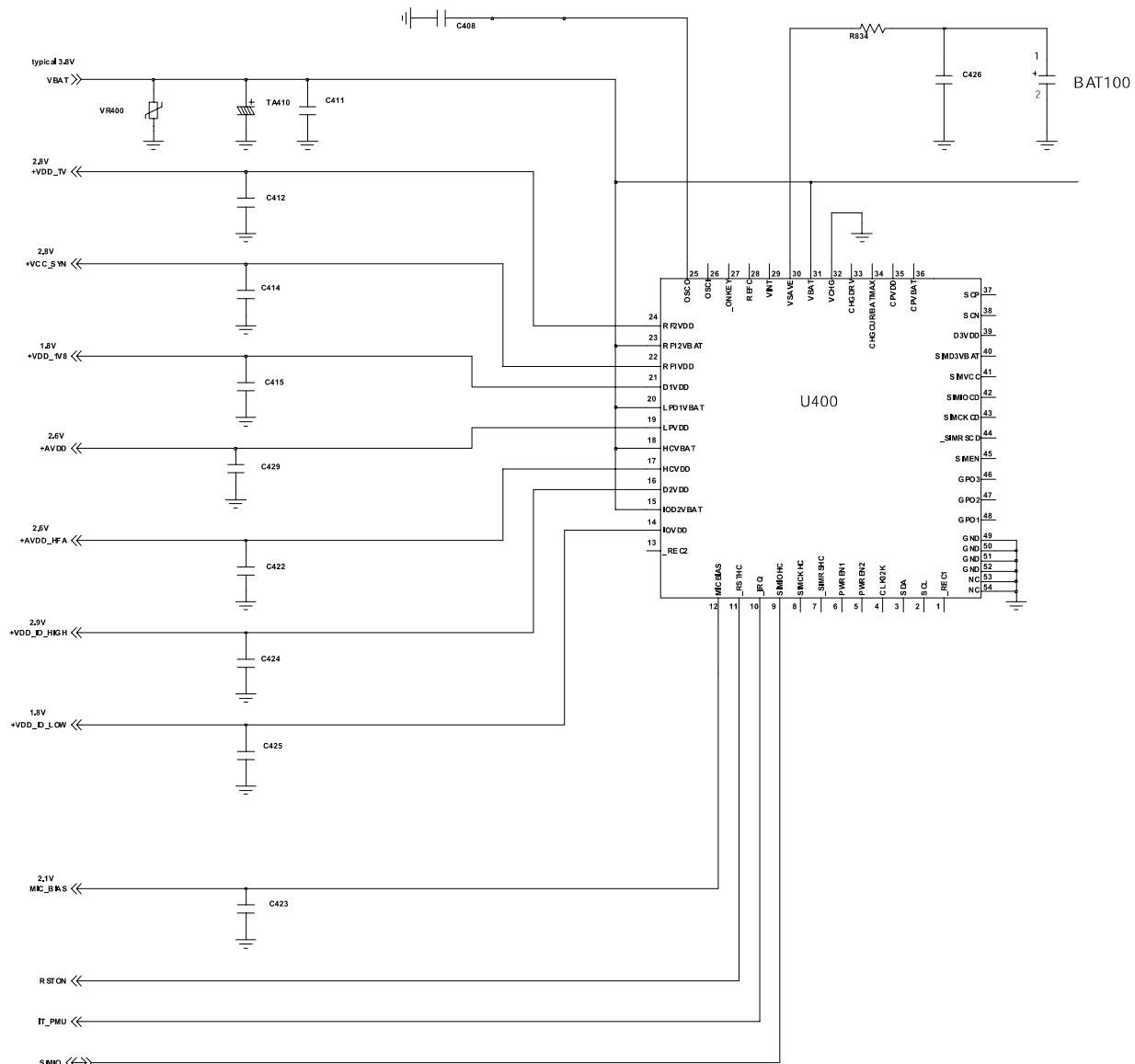




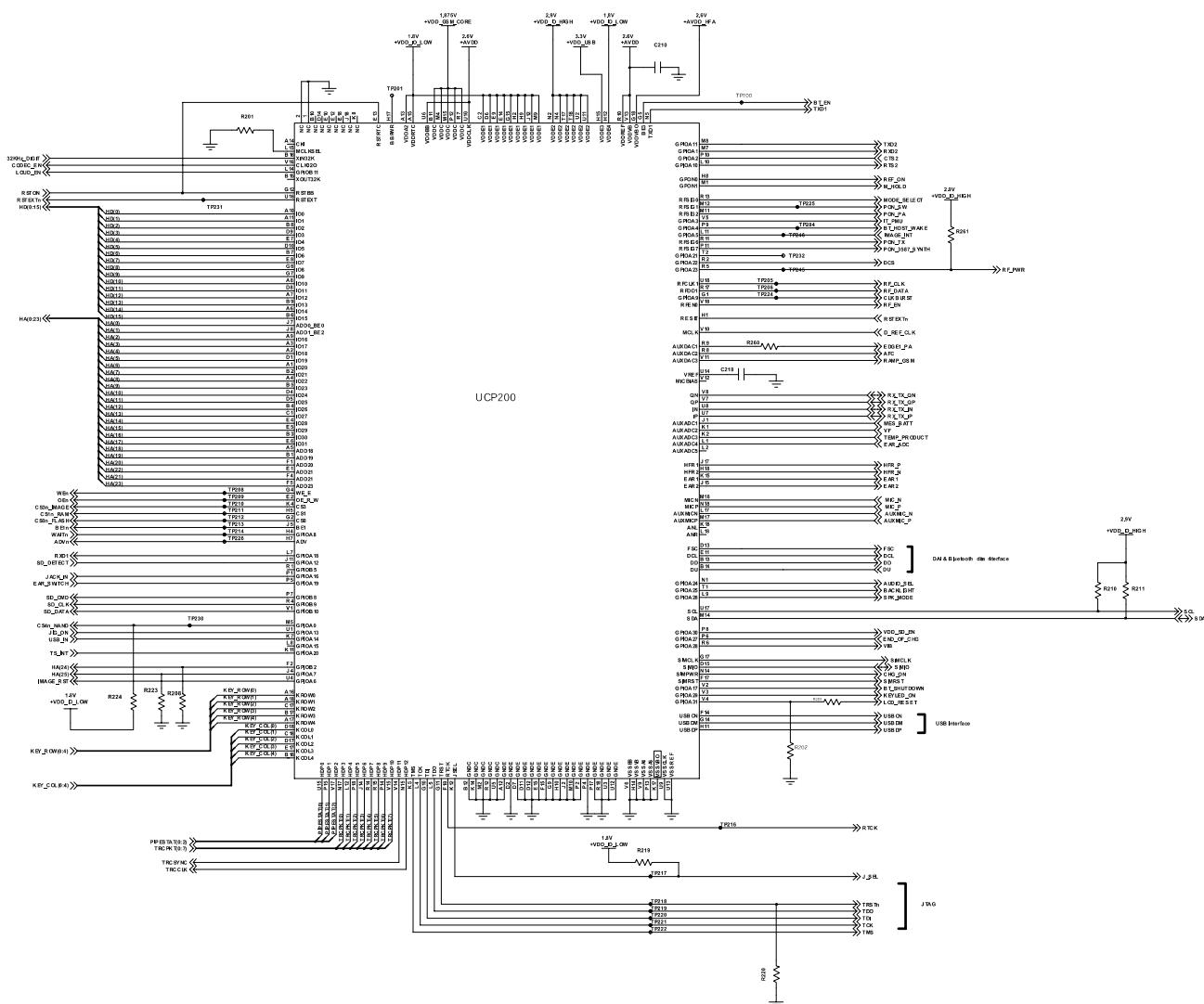
## 9-2. Initial



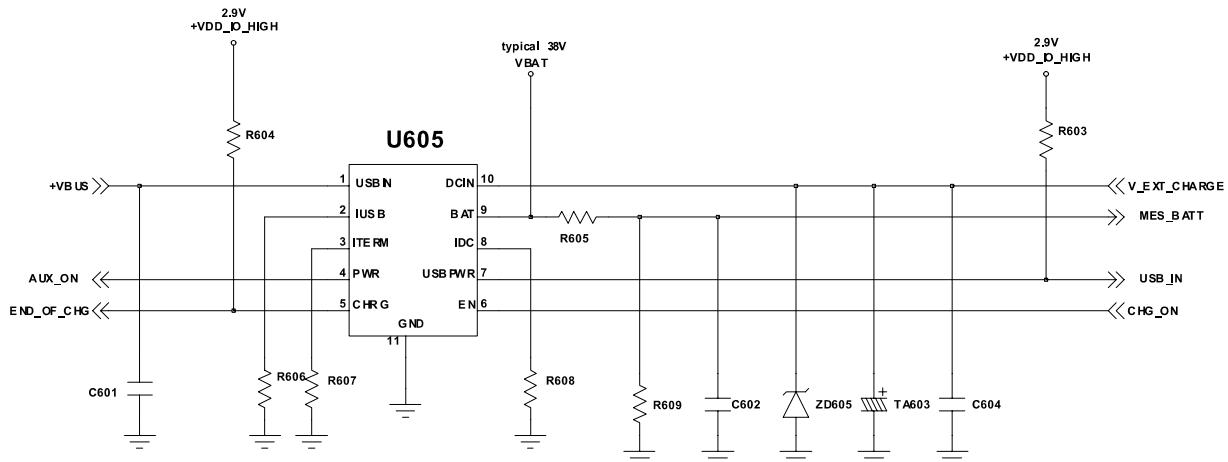
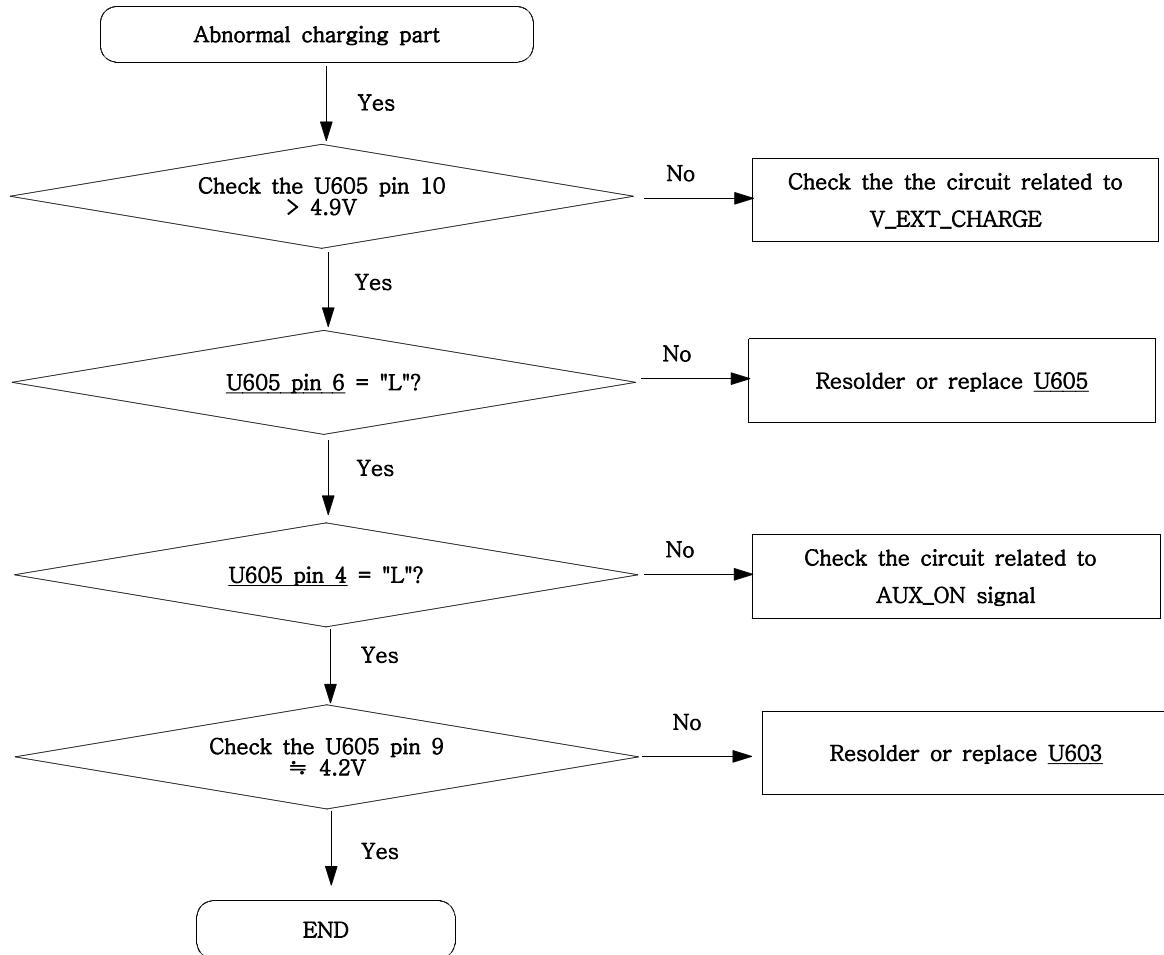
## Flow Chart of Troubleshooting



## Flow Chart of Troubleshooting

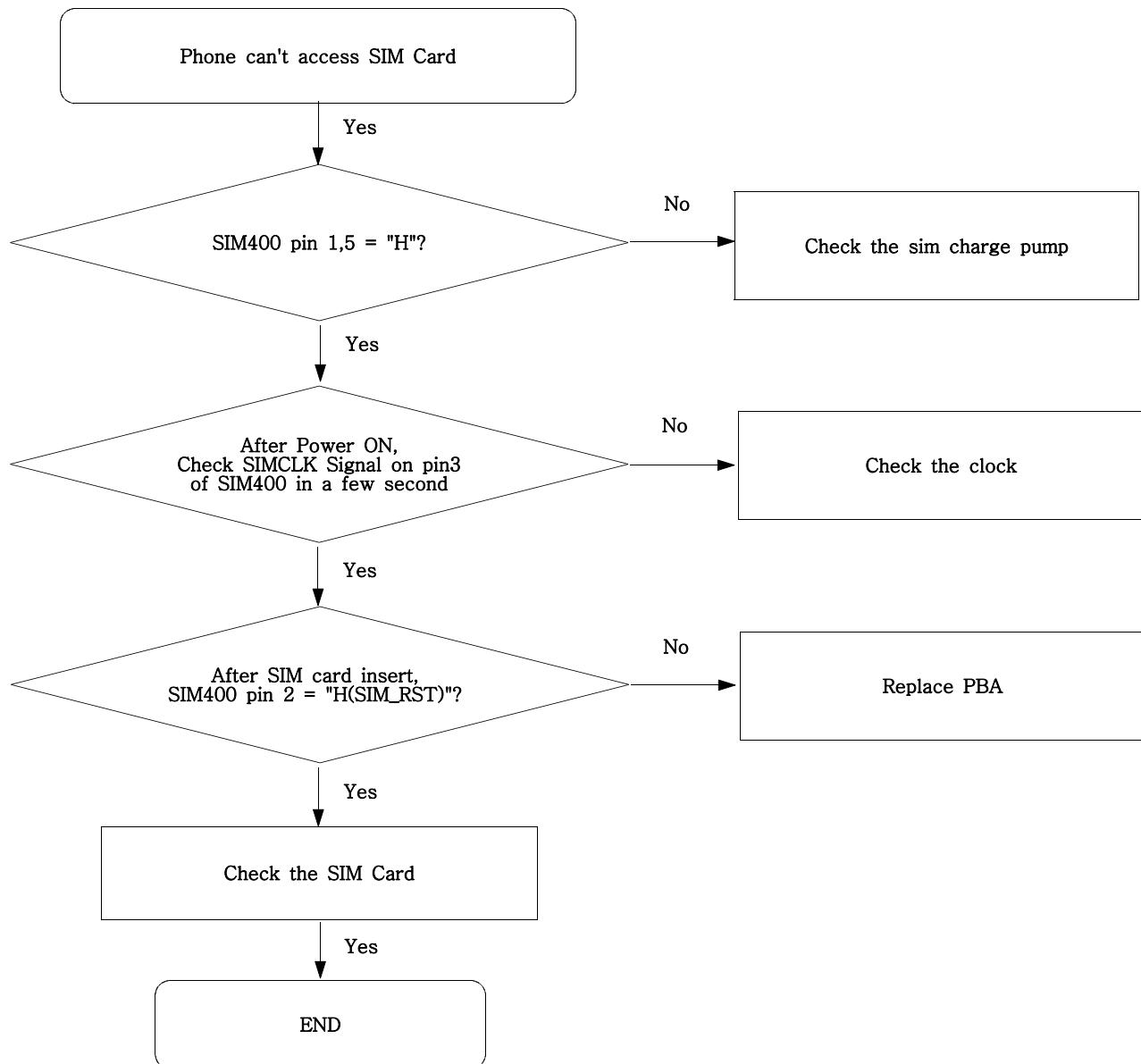


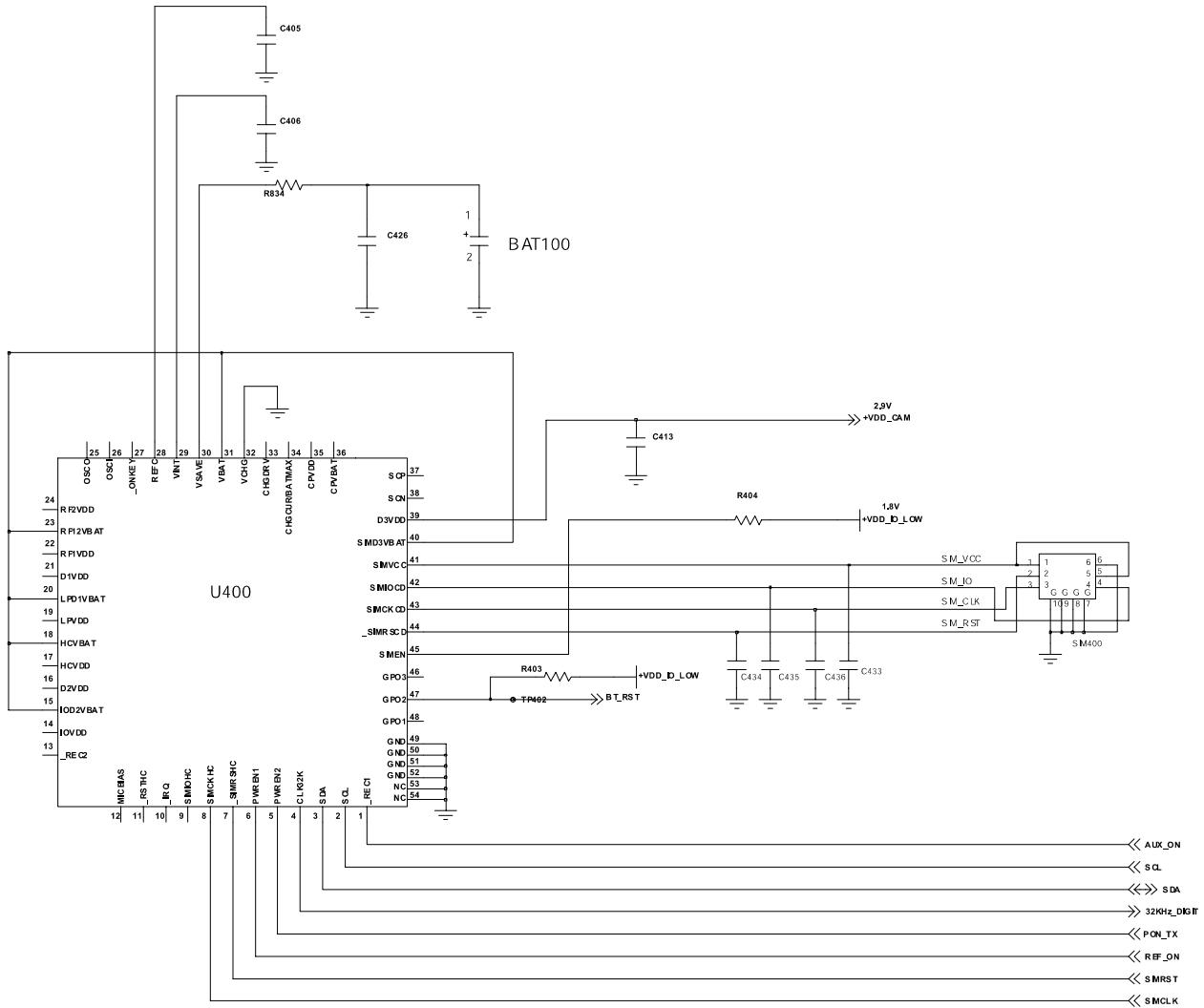
## 9-3. Charging Part



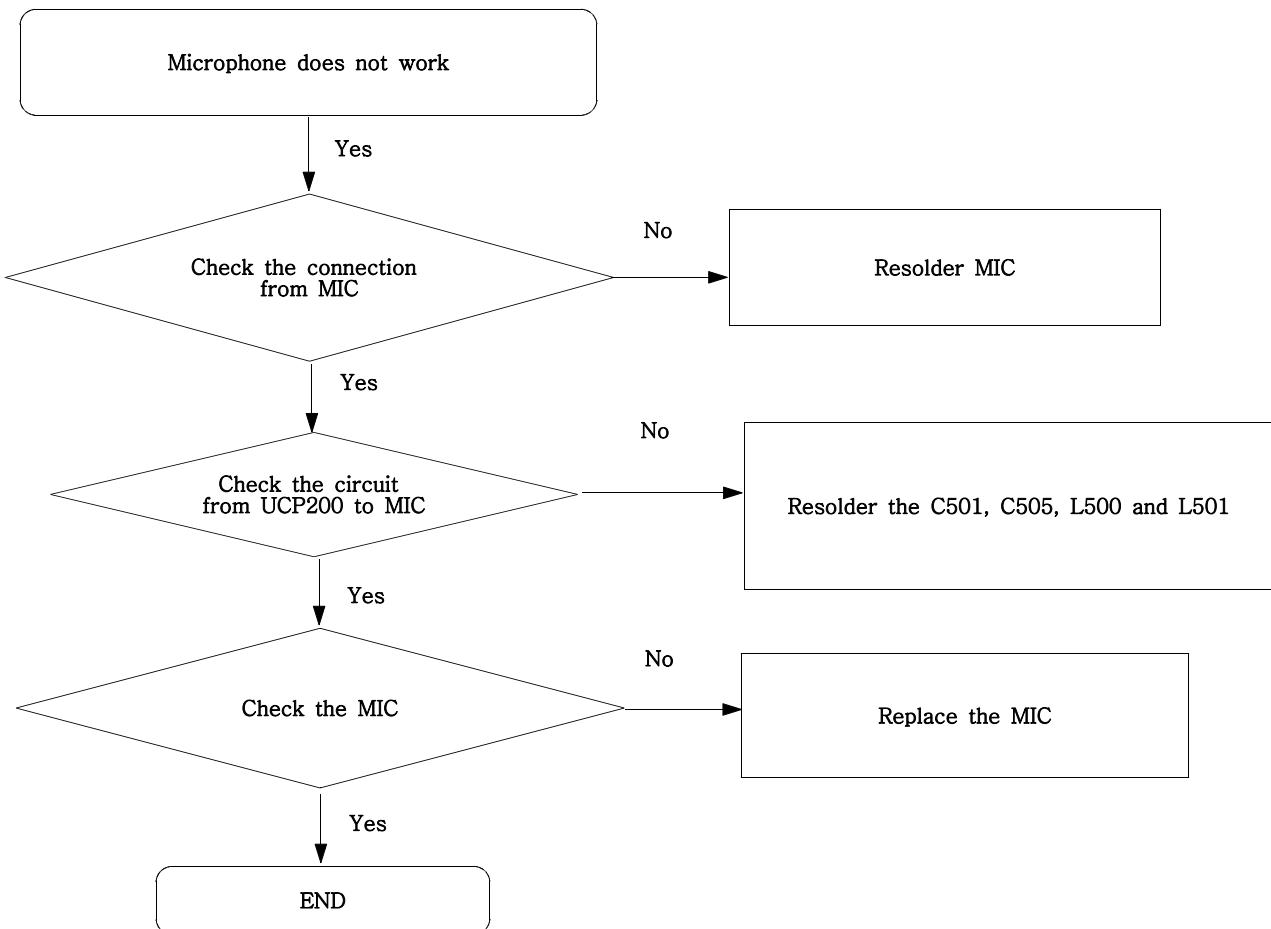
## BATTERY CHARGING

## 9-4. Sim Part

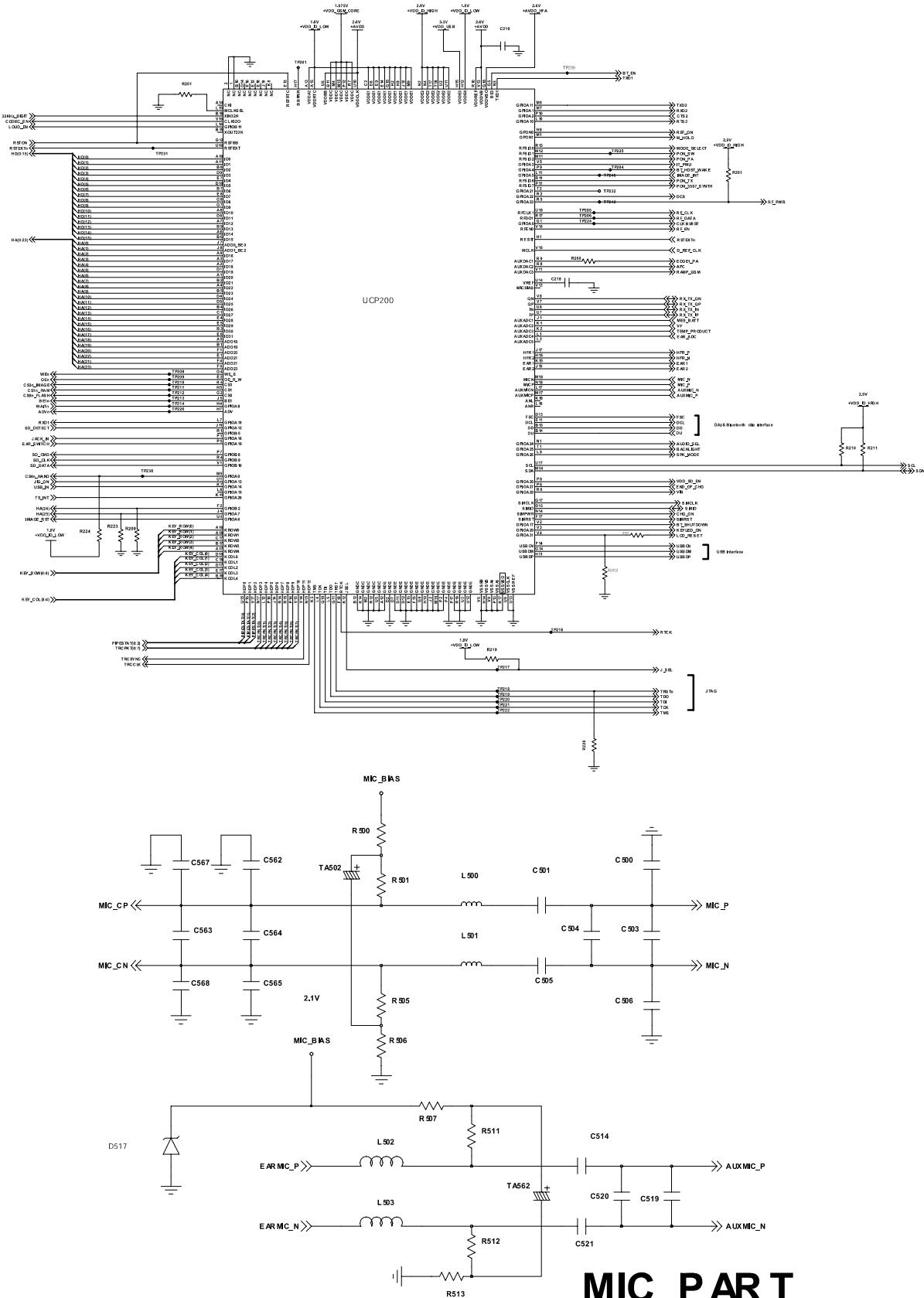




## 9-5. Microphone Part

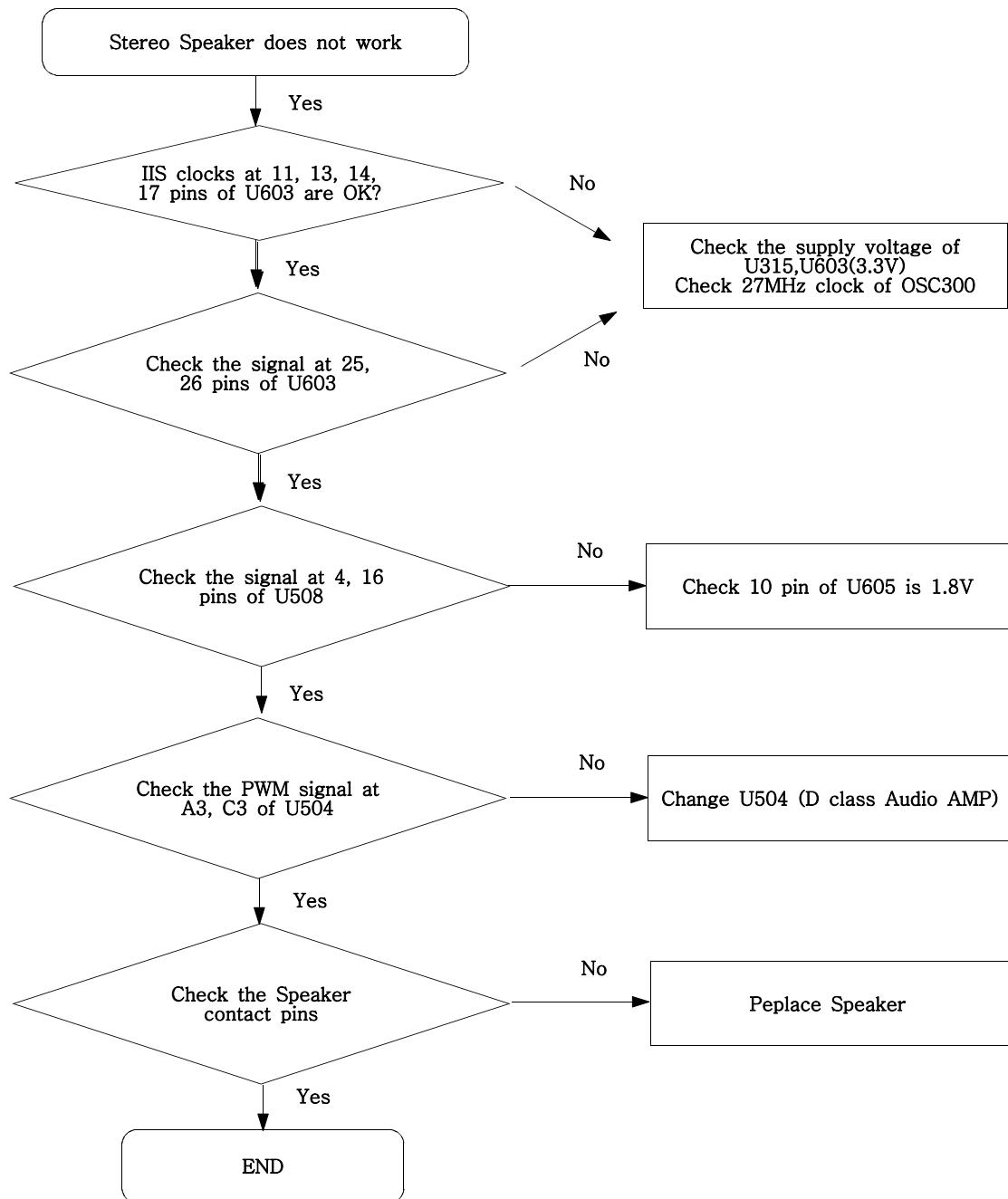


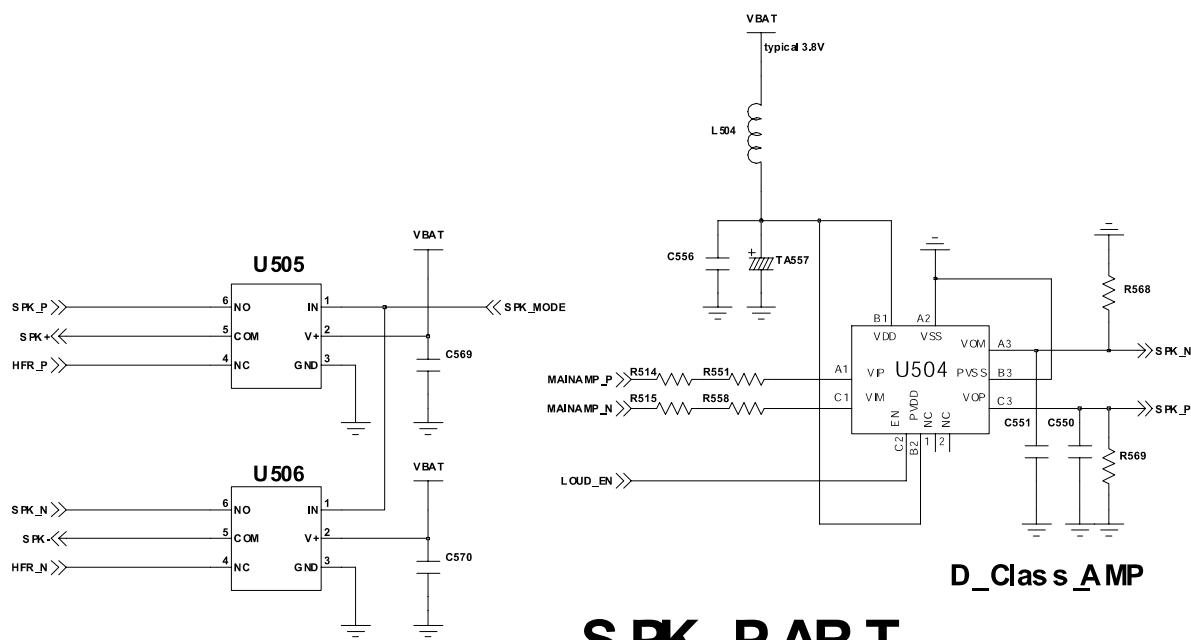
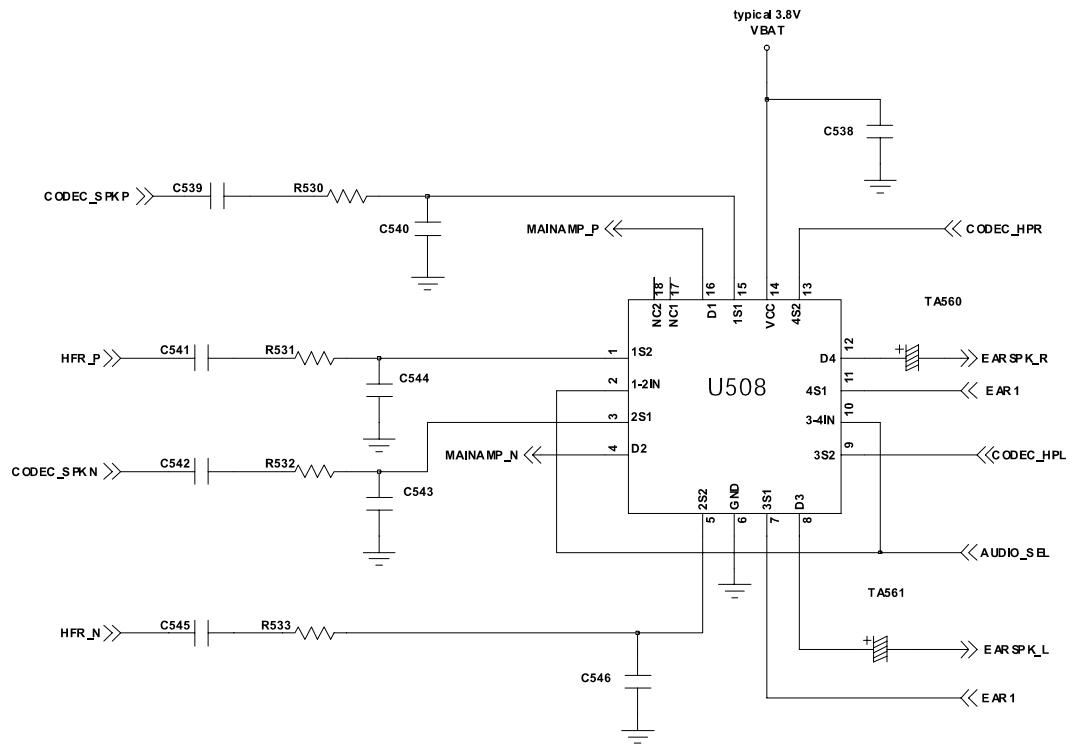
## Flow Chart of Troubleshooting



# MIC PART

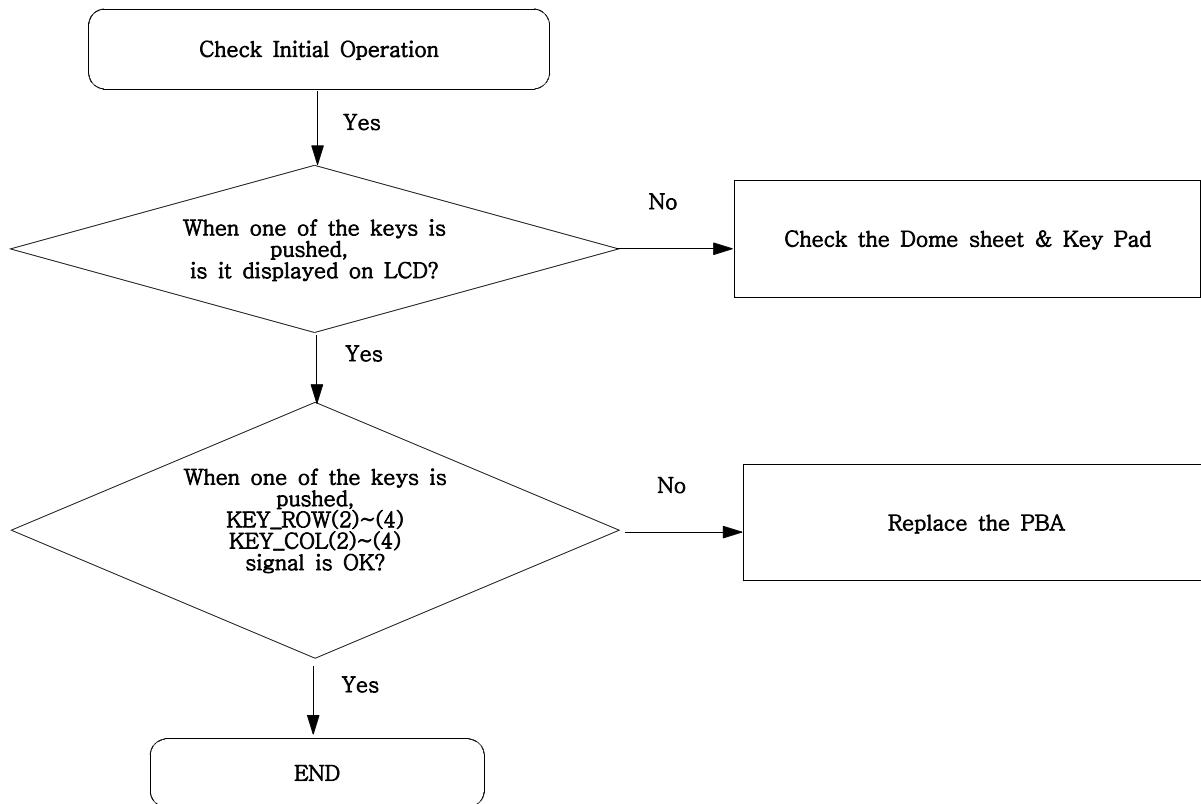
9-6. Speaker Part(MP3/Spk)



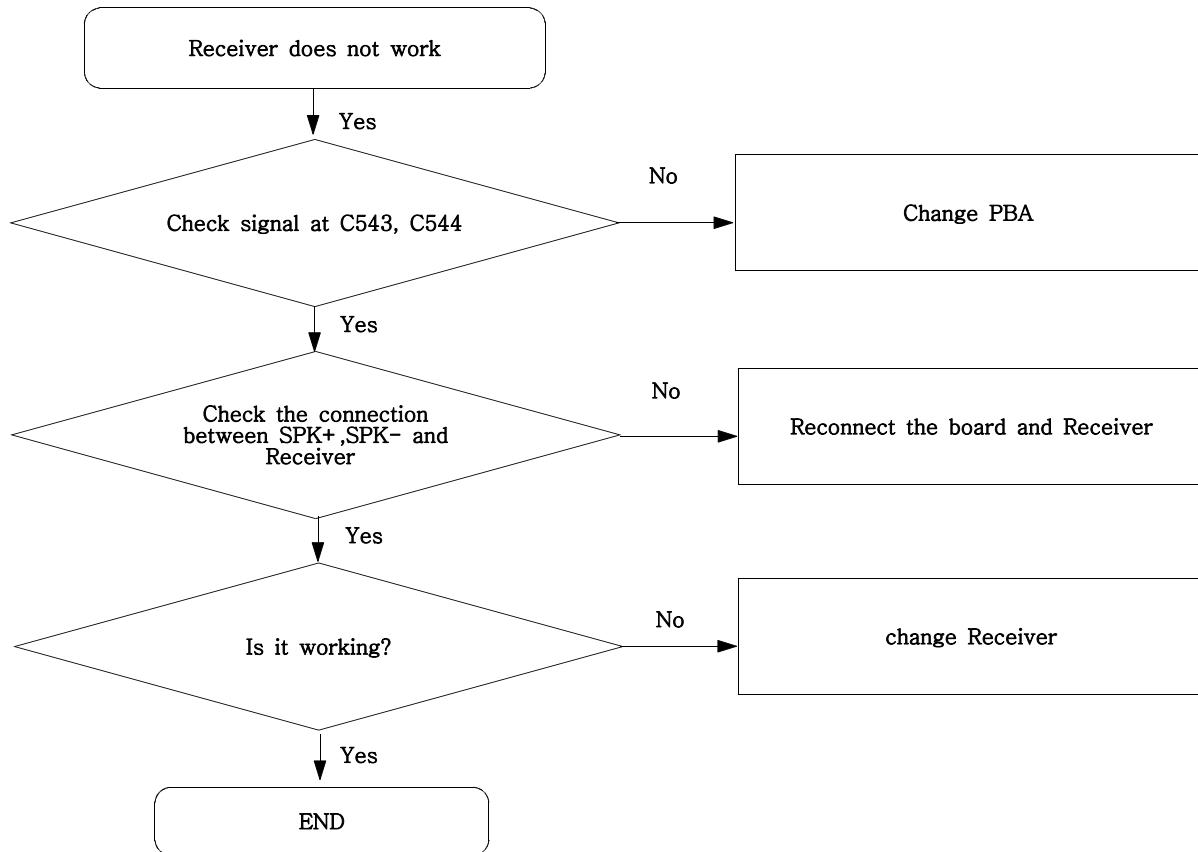


## SPK\_PART

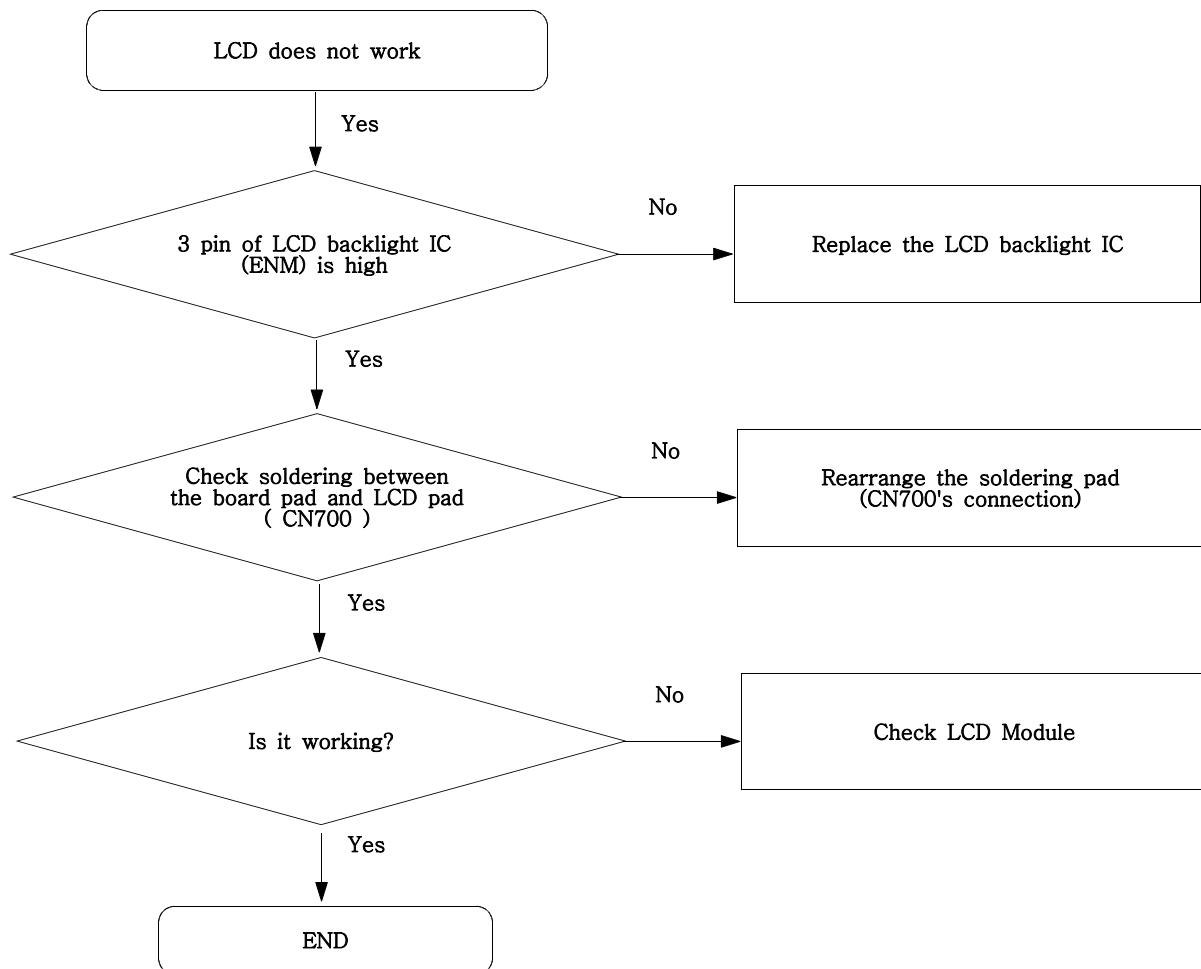
## 9-7. Key Data Input

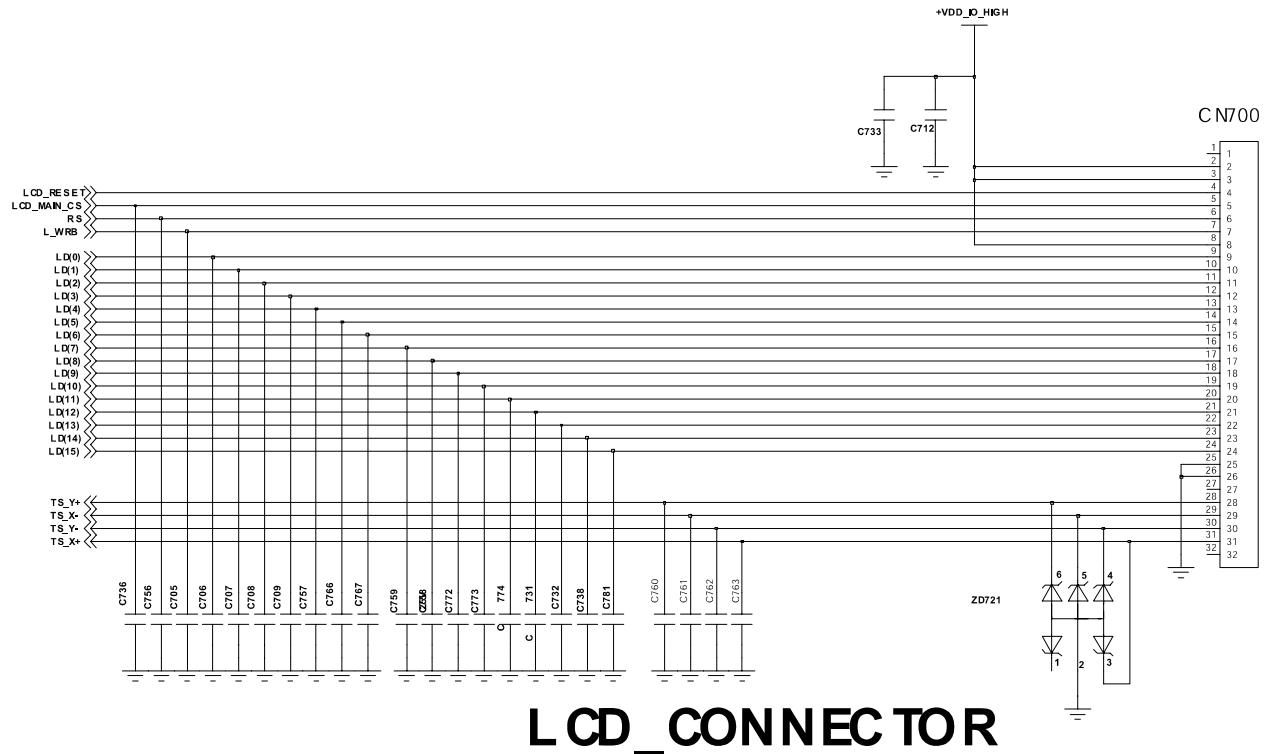


## 9-8. Receiver Part

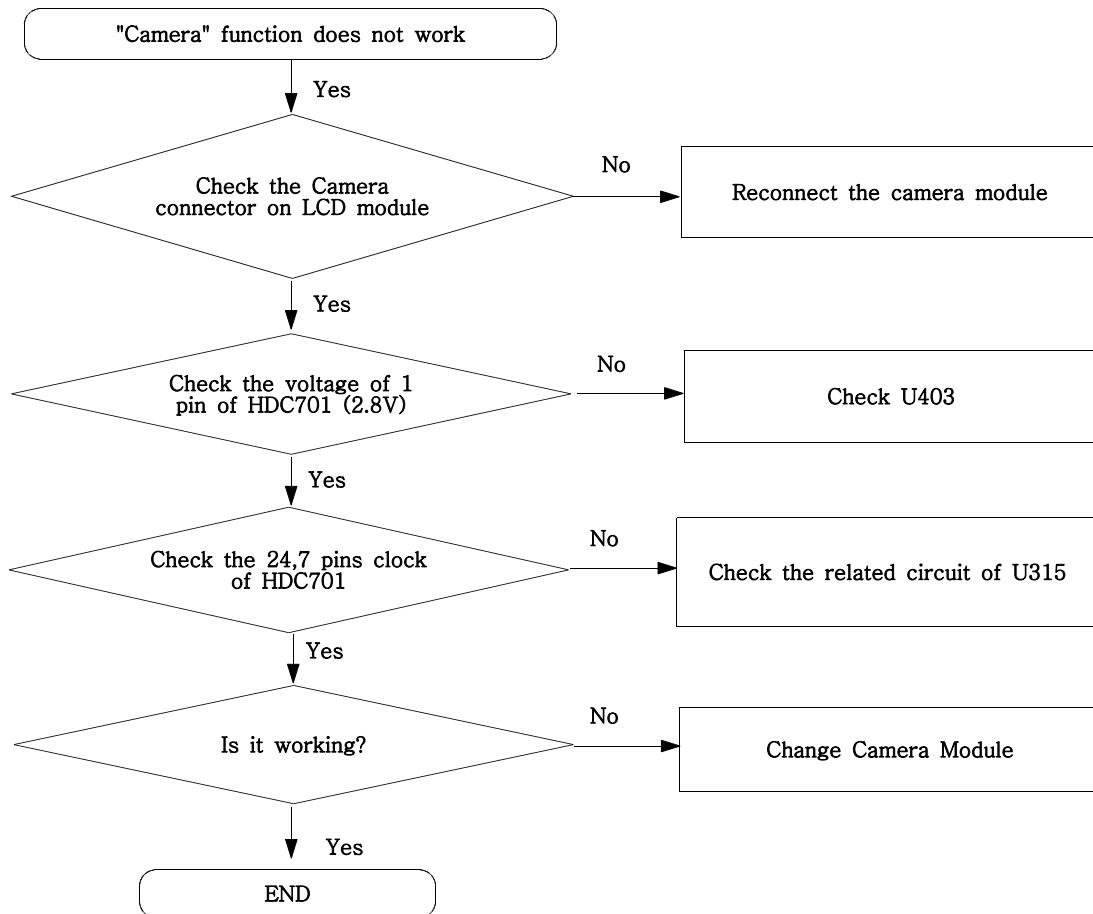


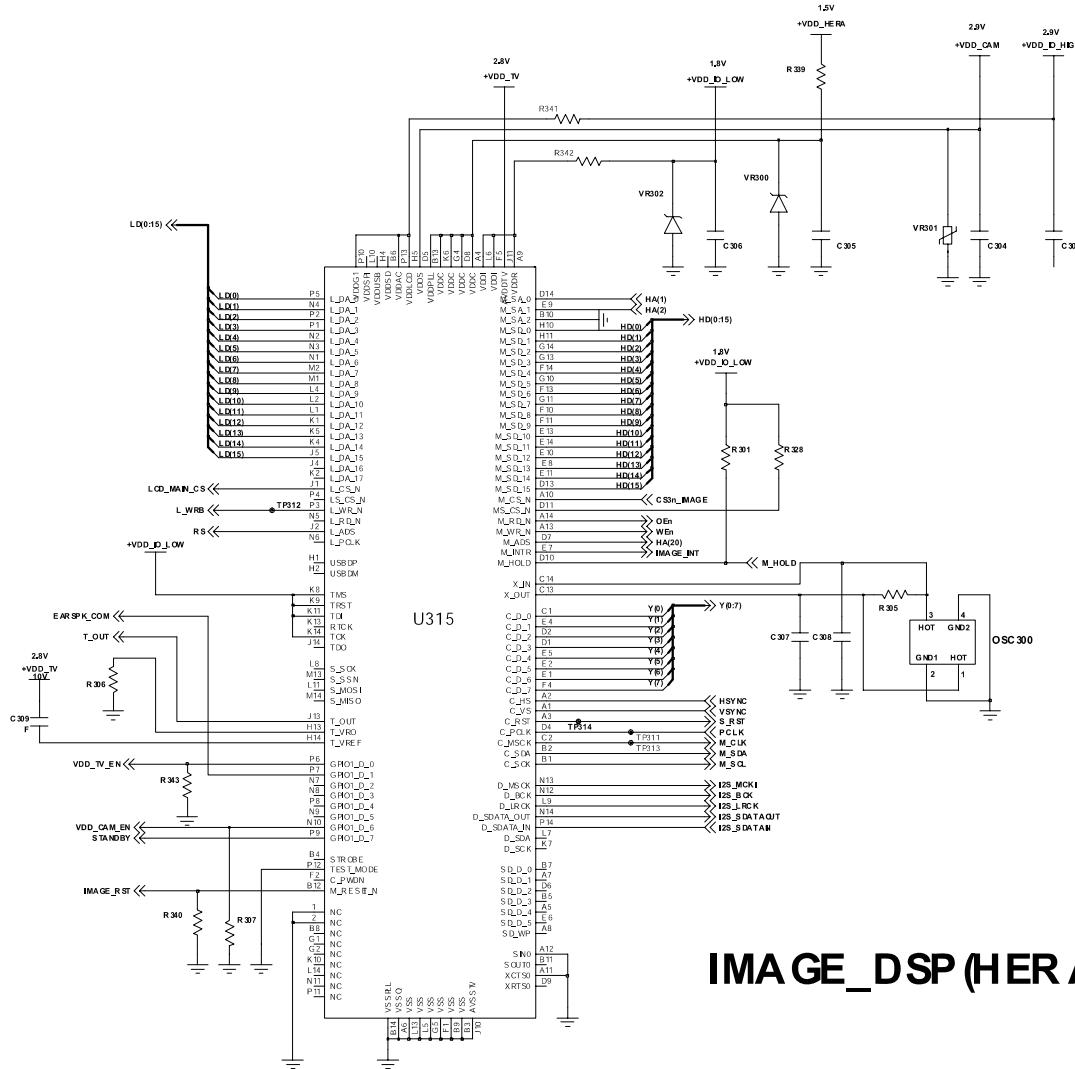
## 9-9. LCD Part



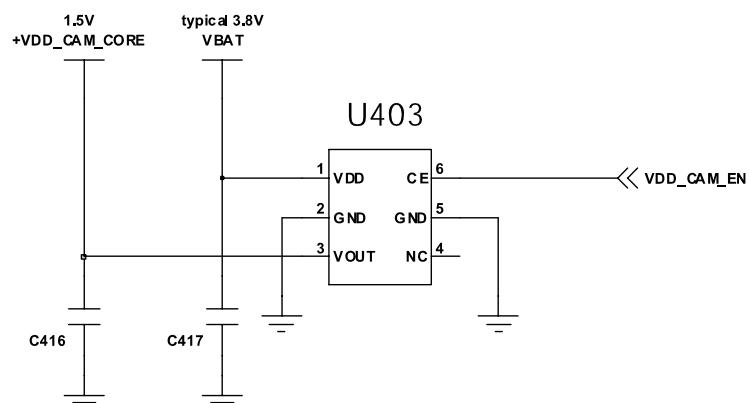


## 9-10. Camera part



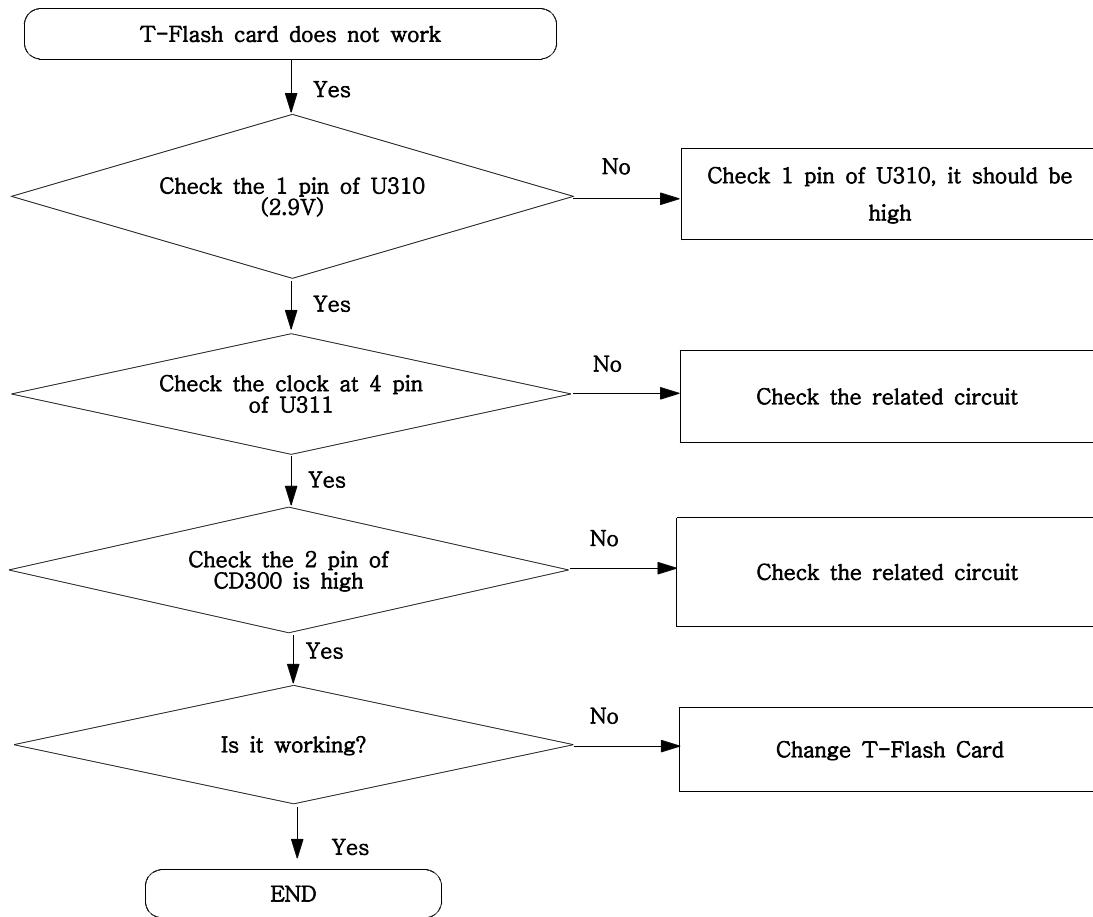


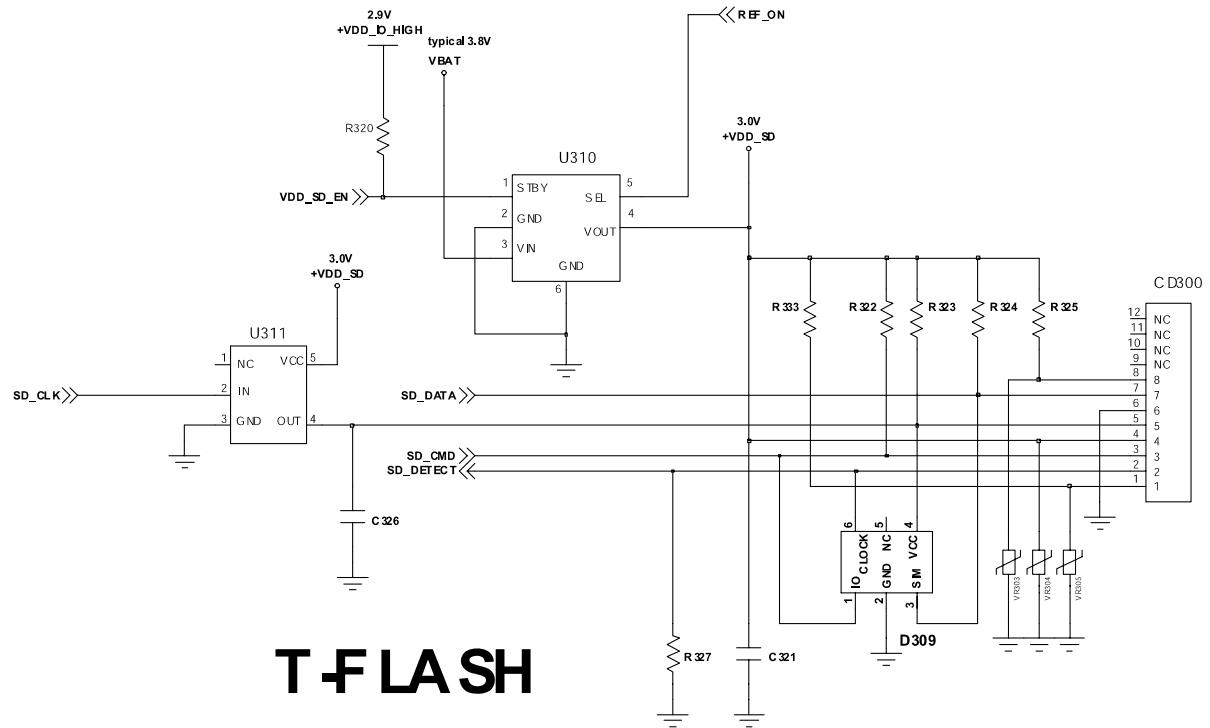
## IMAGE\_DSP (HERE ARE 0)



## CAM LDO(1.5V)

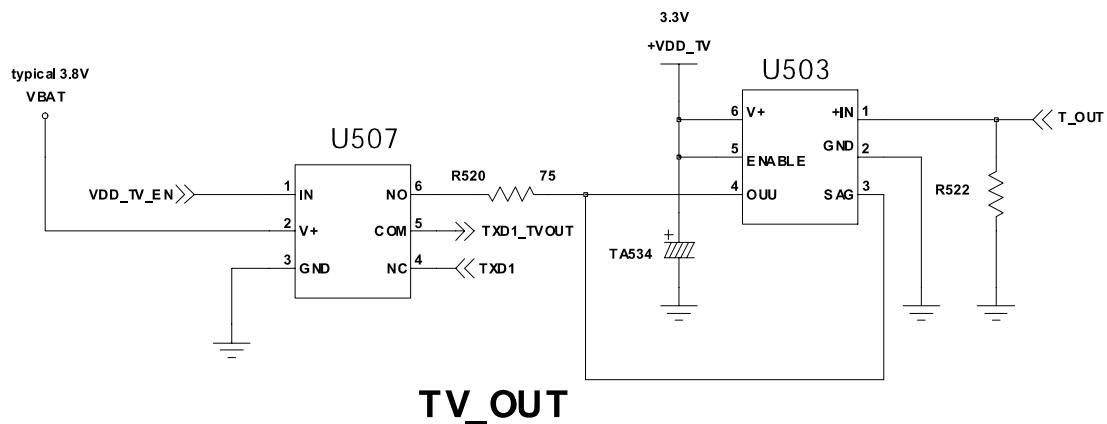
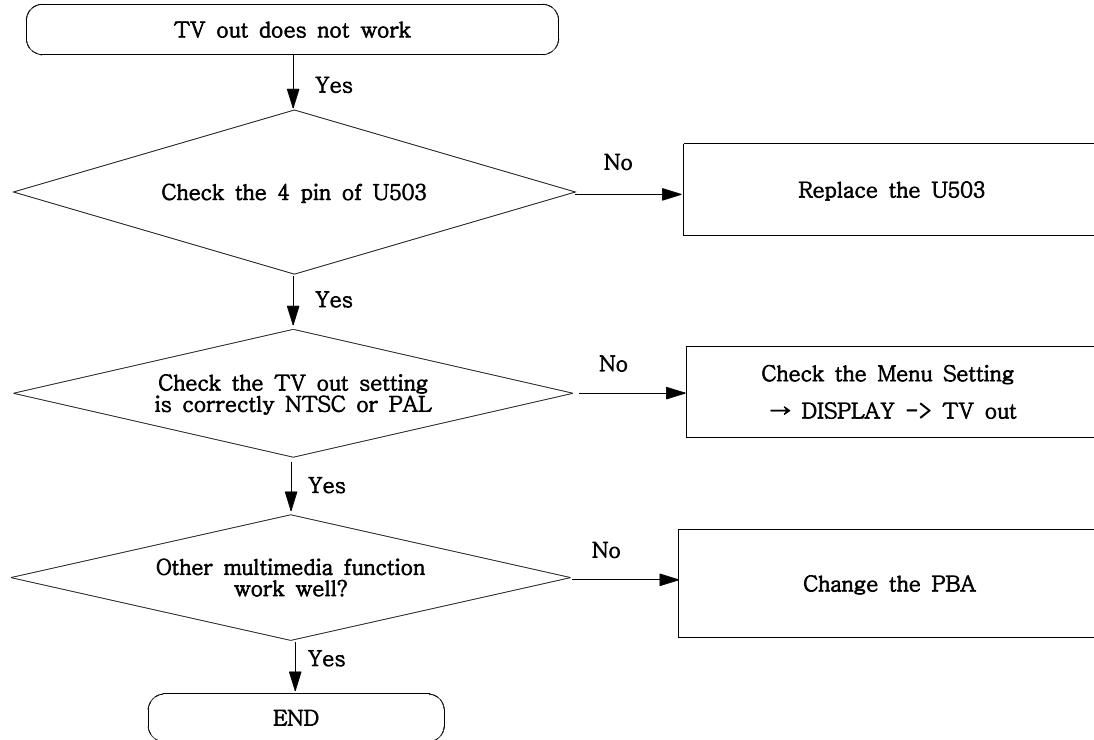
## 9-11. Trans Flash Card part



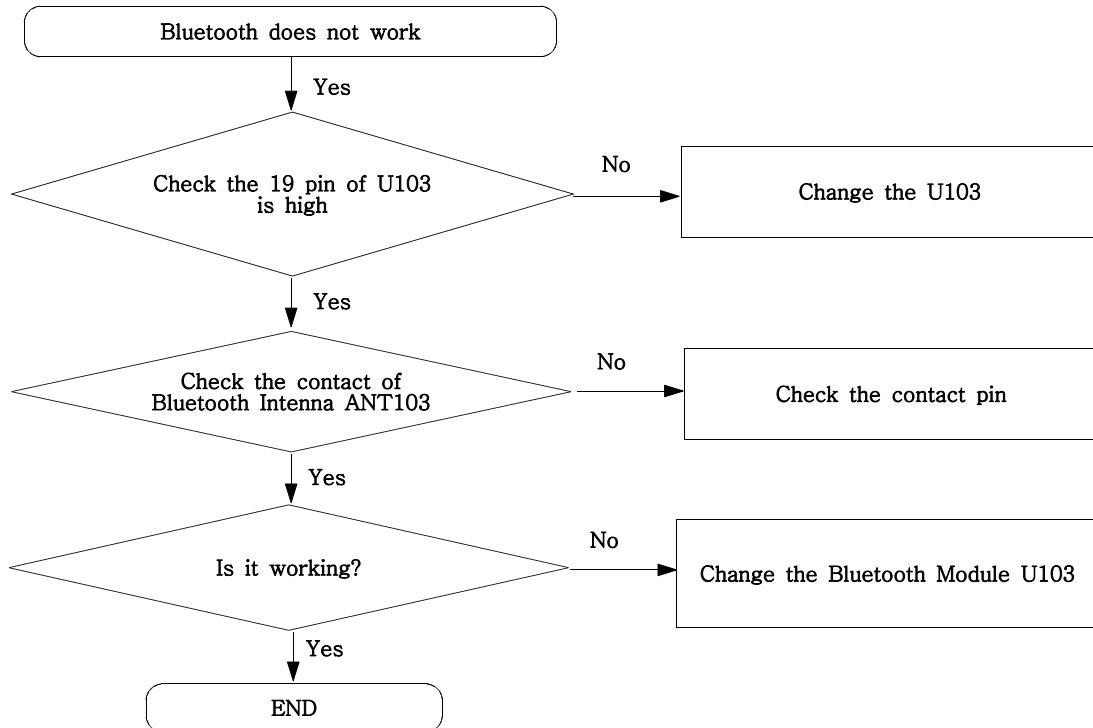


**T-FLASH**

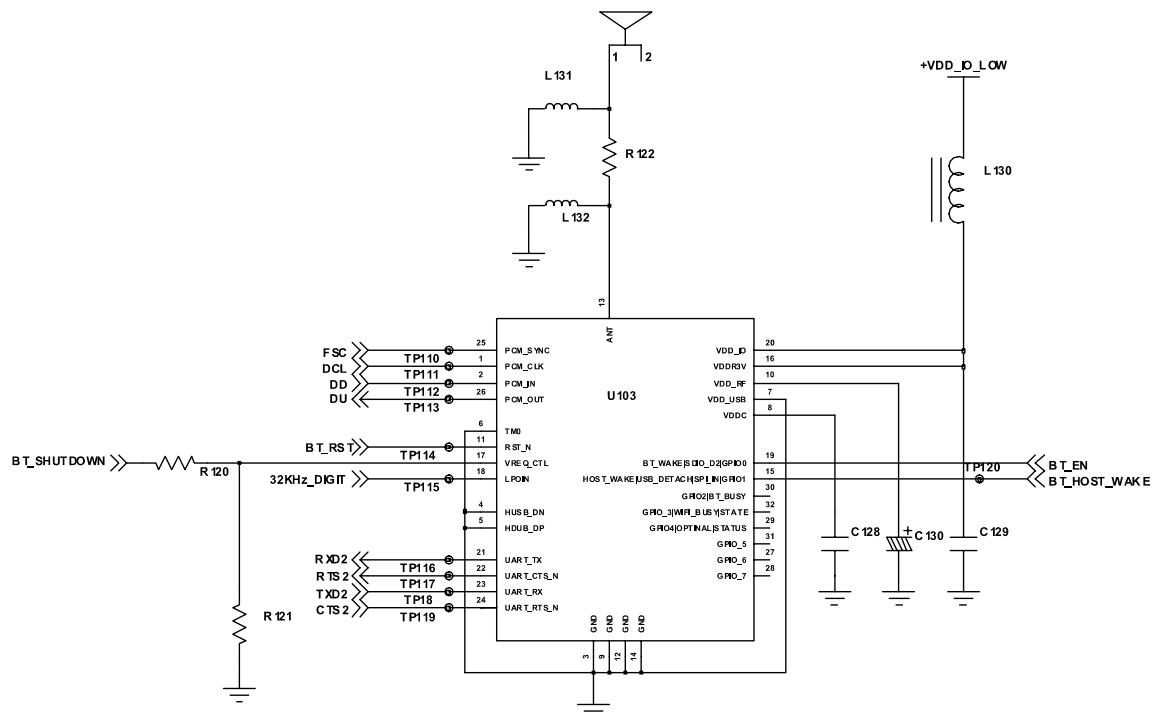
## 9-12. TV OUT



## 9-13. Bluetooth part

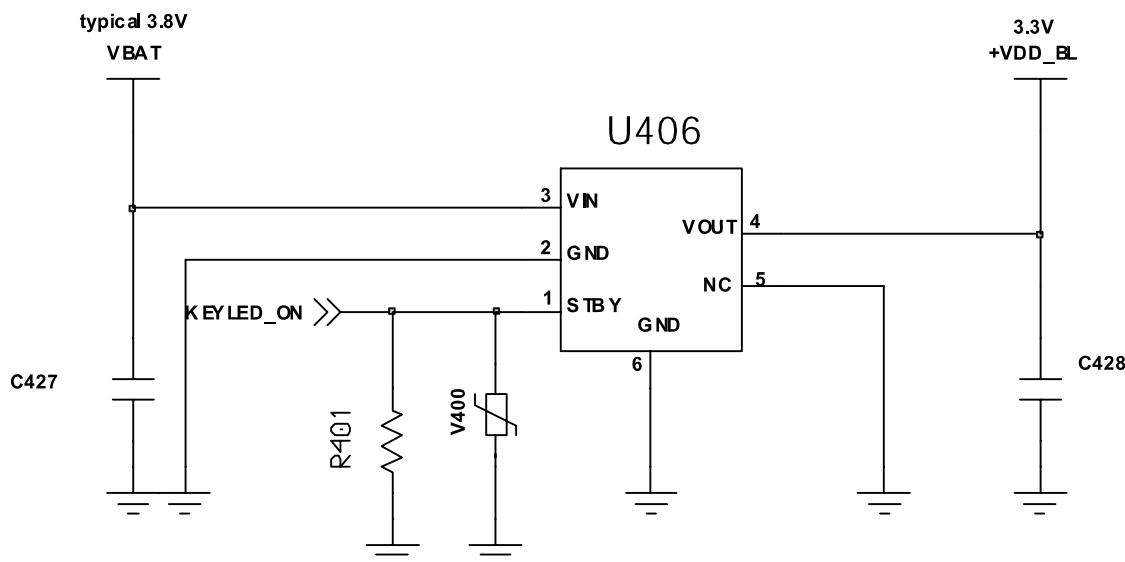
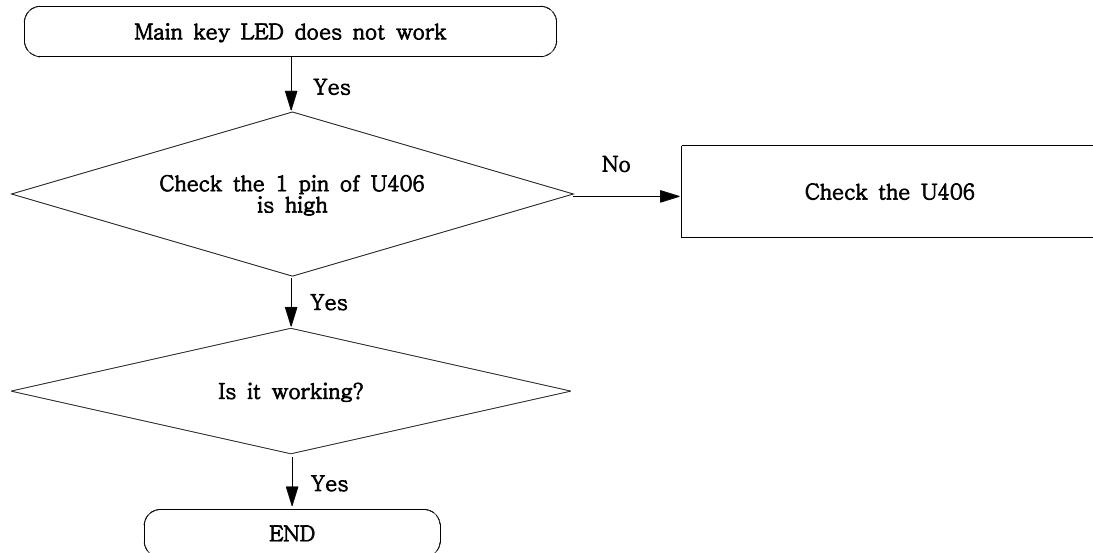


## ANT 103



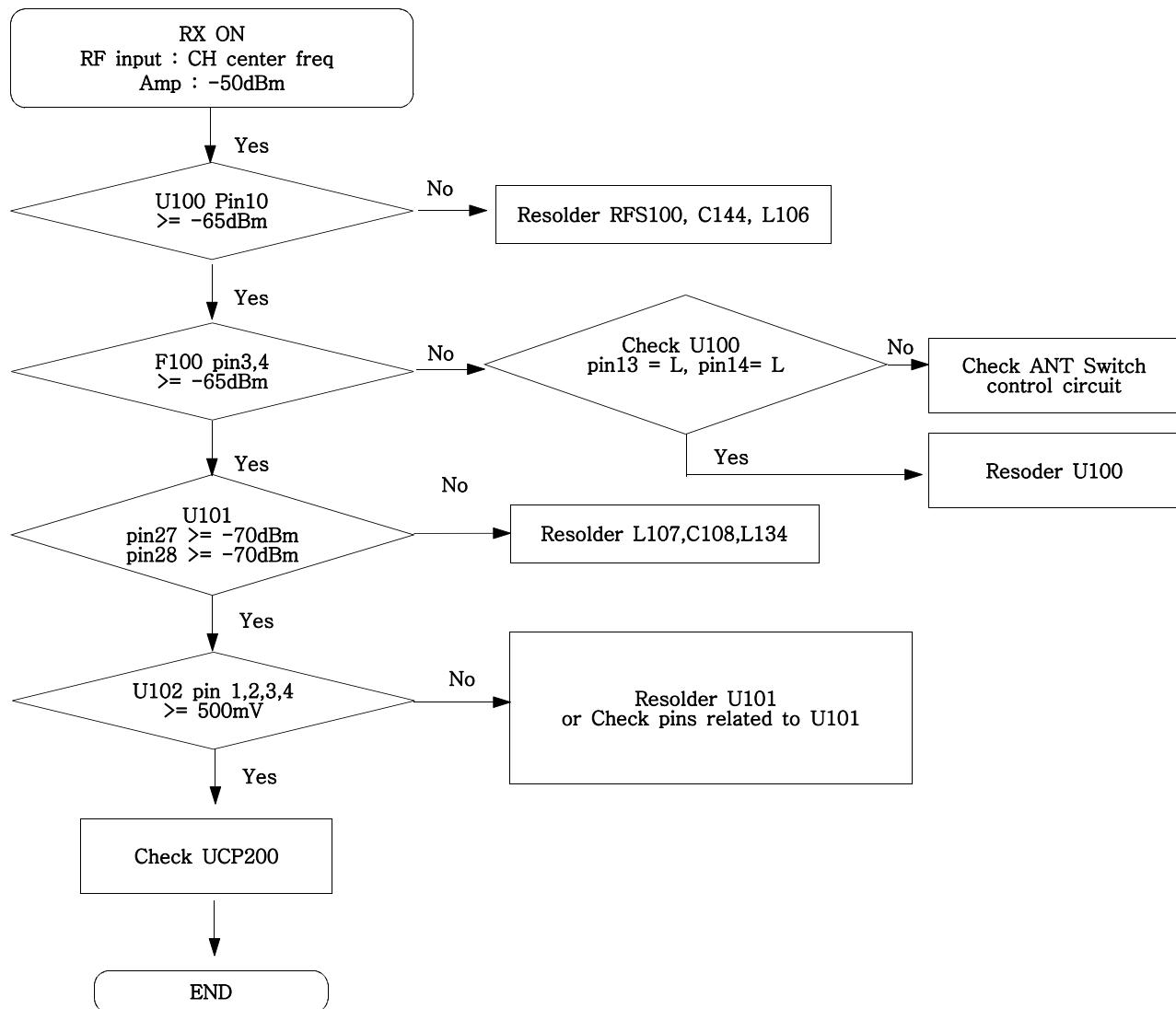
# BLUE TOOTH

## 9-14. Main Key LED part

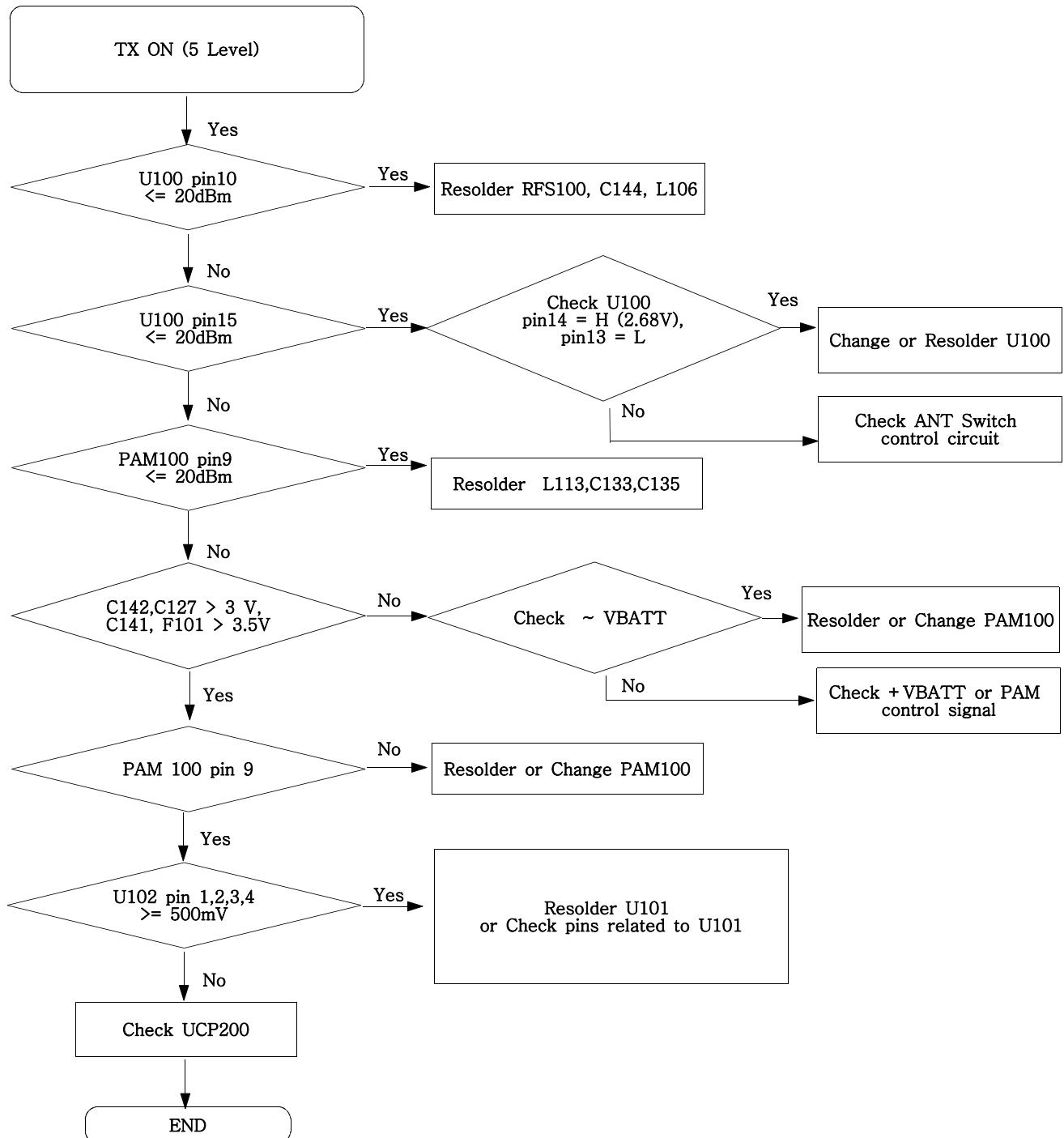


# KEY\_LED\_LDO

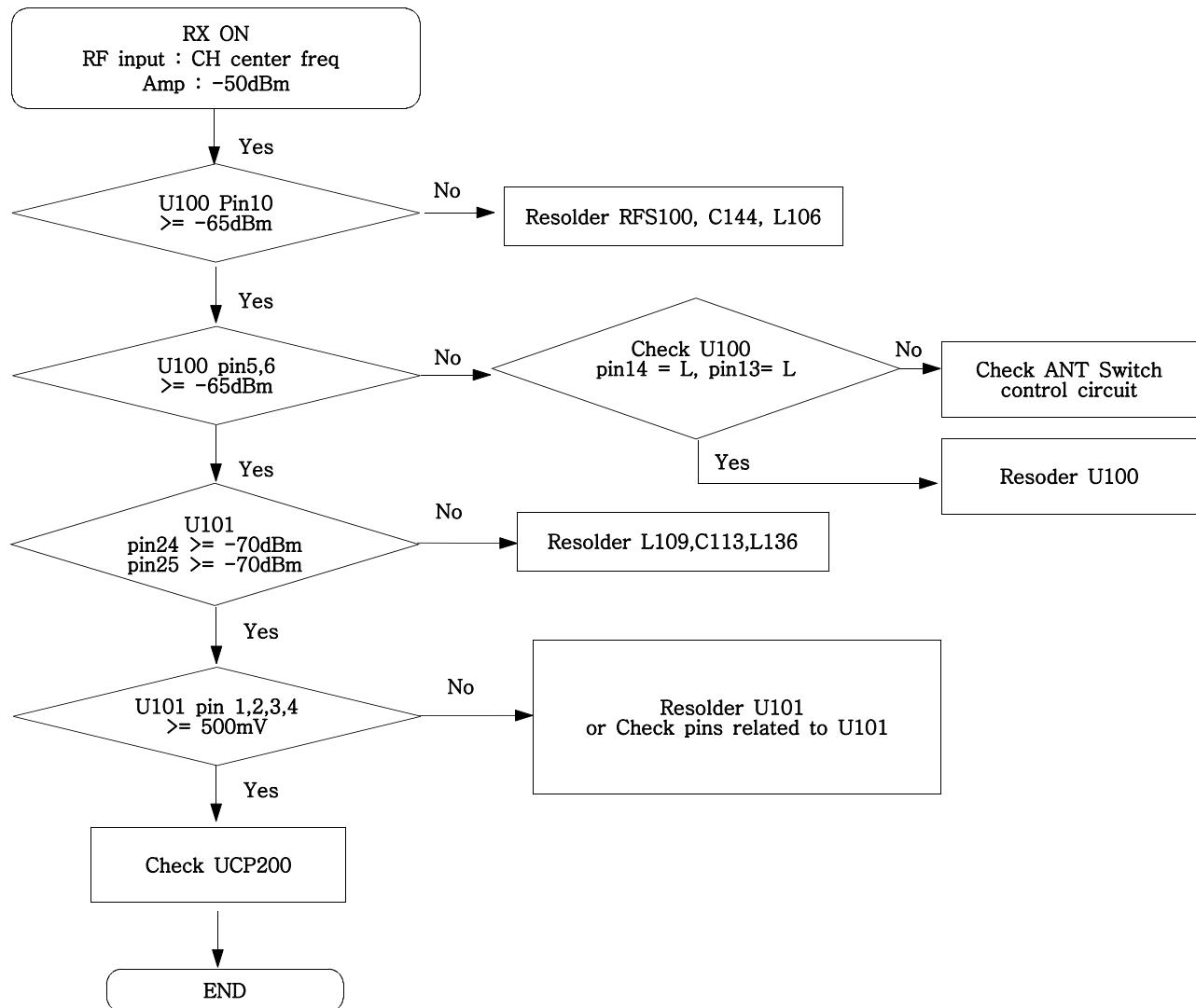
9-15. GSM900 Receiver



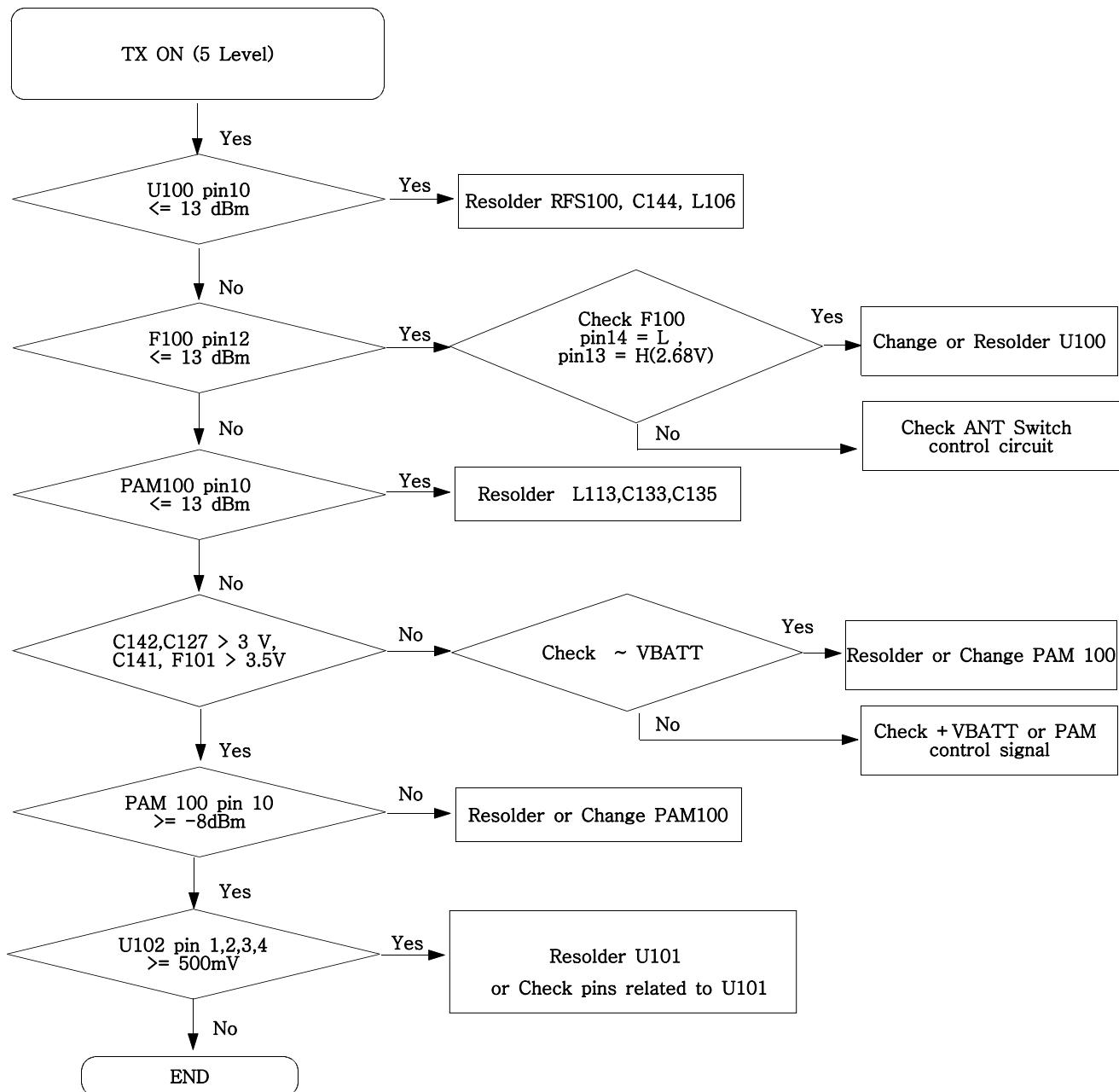
## 9-16. GSM900 Transmitter



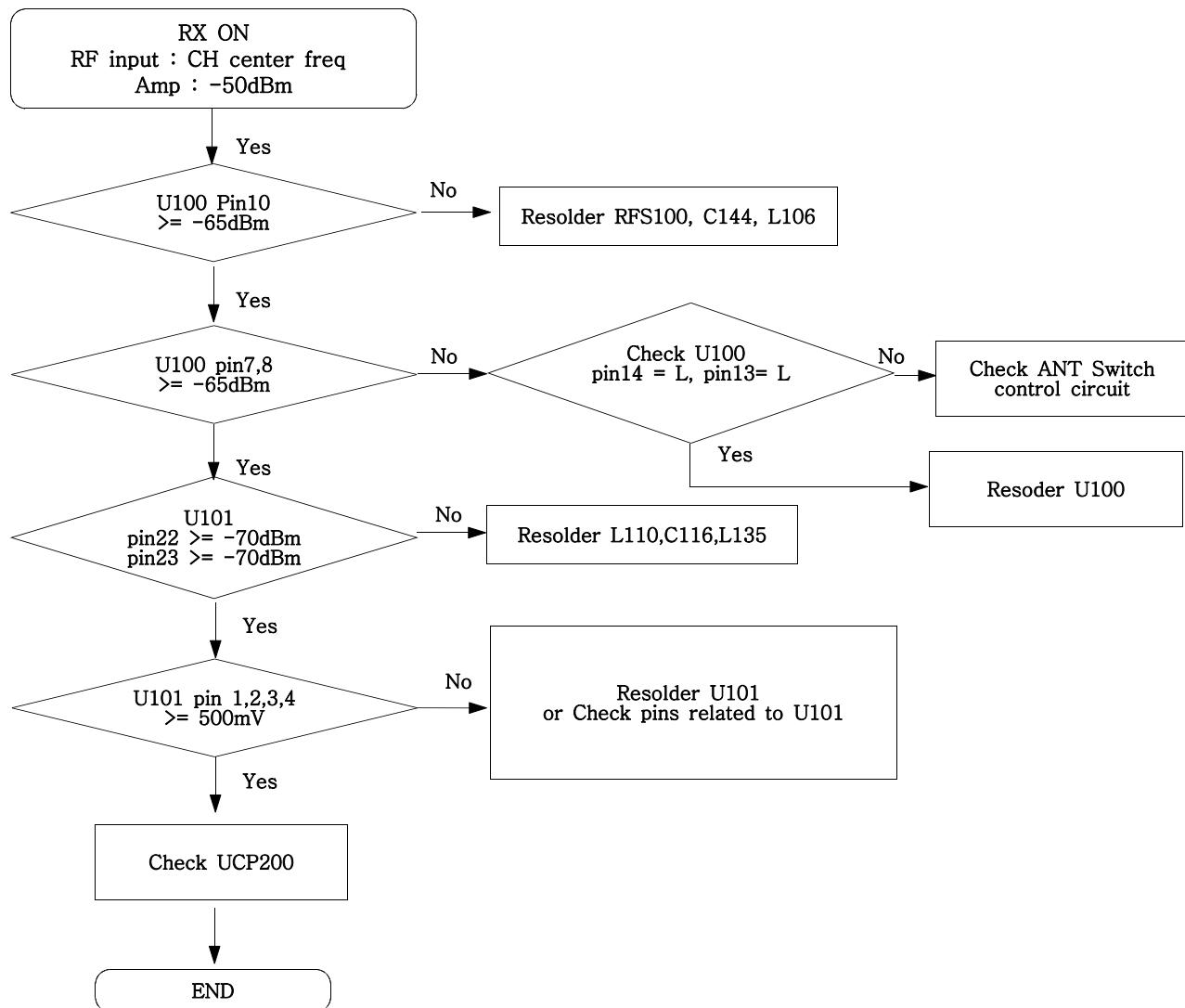
9-17. DCS Receiver

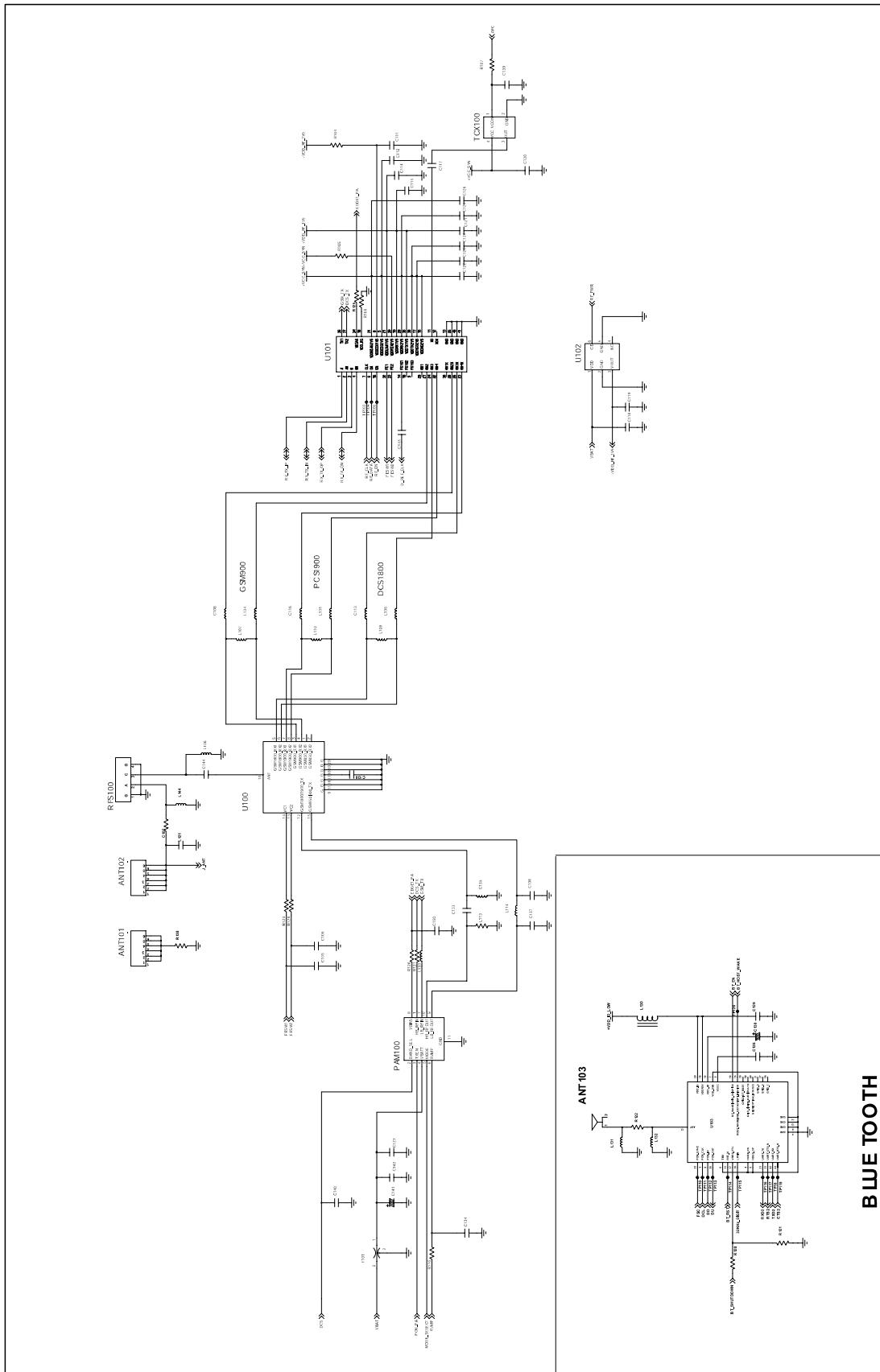


## 9-18. DCS/PCS Transmitter



9-19. PCS Receiver







---

## 10. Reference data

---

### Reference Abbreviate

- **AAC**: Advanced Audio Coding.
- **AVC** : Advanced Video Coding.
- **BER** : Bit Error Rate
- **BPSK**: Binary Phase Shift Keying
- **CA** : Conditional Access
- **CDM** : Code Division Multiplexing
- **C/I** : Carrier to Interference
- **DMB** : Digital Multimedia Broadcasting
- **EN** : European Standard
- **ES** : Elementary Stream
- **ETSI**: European Telecommunications Standards Institute
- **MPEG**: Moving Picture Experts Group
- **PN** : Pseudo-random Noise
- **PS** : Pilot Symbol
- **QPSK**: Quadrature Phase Shift Keying
- **RS** : Reed-Solomon
- **SI** : Service Information
- **TDM** : Time Division Multiplexing
- **TS** : Transport Stream

